SUBJECT INDEX TO VOLUME 61[1]

All new names are printed in *italics*

A

Abacion creolum, 1061
Abutilon berlandieri, 1267
Abutiloneus idoneus, 1267
Acanthodotheca, 425
  spp., 423
Acantholepis frauenfeldi, 209
Acanthoscelides biustulus, 1267
  brunneostictus, 1267
  chiricahuae, 1267
  collusus, 1267
  fumatus, 1267
  inquisitus, 1267
  lobatus, 1267
  macrophthalmus, 1267
  mixtus, 1268
  obtectus, 1171
  perplexus, 1268
  prosopoides, 1268
  pugiunculus, 1268
  pulloides, 1268
  rufescens, 1268
  rufovittatus, 1268
  speciosus, 1268
  subserripes, 1268
  tenuis, 1268
Acaridae, 56, 1030, 1031
Acarina, 56, 129, 251, 393, 411, 679, 968, 986, 1055, 1083, 1097, 1239, 1255, 1475, 1500, 1514
Acarus farris, 941
  siro, 941
  sp., 941
Aceratagallia californica, 70
  curvata, 70
  curvata, biology of, 54
  longula, 70
  sp., 70, 1435
Acetone for preservation of mosquitoes, 779
Acetylcholinesterase from face fly, 397
Acheta domesticus, 687
  radiation profiles comparison, 1359
Acid and aldehyde in scent fluid of Leptoglossus oppositus, 1044
Acinopterus angulatus, 70, 1344
  angulatus, biology of, 54
  pulchellus, 70
Aciurina ferruginea, 553
Acleris variana, 1155
Acontistoptera brasiliensis, 1318
  melanderi, 1318
Acrididae, 173
Acrobasis juglandis, 470
  rubrifasciella, bionomic notes on parasites of, 463
  vaccinii, 1122
Acroneuria abnormis, 1623
  internata, 1623
  lycorias, 1623
Acropyga australis, 209
Acta Entomologica Sinica, 1334
Actina viridis, 871
Acyrthosiphon pisum, 180
  pisum, probing behavior of, 730, 927
  pseudodirhodum, 355
Adelges piceae, 992, 1346
  temperature and humidity and development of eggs, 1606
Adelopteromyia propinqua, 1318
Adiscochaeta abnormis, 426
Adoxomyia rustica, 872
Aedes abserratus, 119
  (Stegomyia) aegypti, 386, 1513
  aegypti, electron microscope study of hypopharynx, 1274
  aegypti, sexual isolation and A. mascarensis, 865
  atlanticus, 1132
  atropalpus, 1132
  aurifer, 119
  canadensis, 119, 386, 1132
  (Ochlerotatus) cantator, 386
  cinereus, 119, 386
  (O.) communis, 386
  (O.) dorsalis, 386, 1132
  excrucians, 119
  (O.) fitchii, 386
  (Chrysoconops) fulvus pallens, 386
  hendersoni, hybridization, 1020
  mascarensis, sexual isolation and A. aegypti, 865
  (O.) nigripes, 386
  nigromaculis, 1132
  (O.) scapularis, 386
  simpsoni, 992
  sp. 1040
  (O.) sticticus, 386, 1138
  taeniorhynchus, pupation rhythm in, 889, 1408
  tormentor, 1132
  (O.) trichurus, 386
  (Finlaya) triseriatus, 386, 1132
  triseriatus, hybridization, 1020
  trivittatus, 1132
  (Aedimorphus) vexans, 386, 1132
  zoosophus, 1132
Aegeridae, 255
Aegeriid clear-winged moth, 258
Aenictonia, revision of, 971
  anommatophila, 974
  banghaasi, 976
  bicornis, 982
  burgeoni, 976
  carinata, 977
  cornigera, 978
  costata, 978
  diversa, 976
  hemigostrophysa, 979
  longicornis, 974
  patrizii, 971
  raffrayi, 980
  reichenspergeri, 981
  rubella, 982
  schwabi, 976
  socia, 976
  thailandica, 981
  tristis, 976
  vosseleri, 980
  wilverthi, 974
Aenictus binghami, 971
  eugenii, 978
  weissi, 978
Aeropedellus clavatus, 1540
Afromyia, 306
  and revision of Sphaerocera, 296
  jeanneli, 309
  longipes, 309
  ruandana, 306
  wittei, 307
Agallia constricta, 1344
  spp., 1435
Agasicles connexa, 1299
  n. sp., 1299
  opaca, 1299
  sp., bionomics of, 1299
  vittata, 1299
Agathis calcarata, 465
  n. sp., 1121
Agelenidae, 569
Agmoblatta thaxteri, 84, 133
Agriopidae, 569
Agrotis ipsilon, 1545
  vetusta, 71
Ahasverus advena, 1532
Aknisus multispinus, 70
Aleochara sp., 1313
  taeniata, 1313
Alfalfa weevil, bacteria in larvae, 791

[1] Compiled by Gladys O. Visel

behavior of, 1224
phototactic response of, 1561
Aliulus bollmani, 1061
caddoensis carrollus, 1061
Allepeira conferta, 1219
Alligatorweed flea beetle, bionomics of, 1299
Allognosta fuscitarsis, 871
Alomyini, 281
Alsophila pometaria, 557
Altermetoponia rubriceps, 871
Altica sp., 71
Alydus, biology of, 526
conspersus, 526
eurinus, 526, 566
pilosulus, 526, 566
Alysia manducator, 1313
Alysson melleus, 1344
Amazonina sp., 133
sp. nov., 84
Amblycerus martorelli, 1268
vitis, 1269
Amblymerus confusus, 1385
verditer, 1156
Amblyomma geomydae, 724
helvolum, 724
javanense, 724
limbatum, 837
moreliae, 837
sp., 724
testudinarium, 724
triguttatum, 837
Amblyseius, in the Sudan, 1087
mites from Hawaii, 1514
Amblyseius *benicus*, 1088
caudatus, 1514
coniferus, 1520
esculentus, 1089
eucalypterus, 1518
haleakalus, 1516
haramotoi, 1517
hibisci, predator-prey interactions with Oligonychus punicae, 393
largoensis, 1515
limonicus, 1517
longispinosus, 1515
mauiensis, 1519
mexicanus, 1520
mumai, 1518
neolargoensis, 1516
ohauensis, 1518
ovalis, 1517
ovatus, 1519
peregrinus, 1516
rhabdus, 1516
scyphus, 1518
shambati, 1087
volcanus, 1515
American: cockroach, action of carbamates in, 618
dog tick, use of old-field habitats, 679
Ametropodidae, 702
Amino acids in: aphid, 1201
cockroach, 1027
Amobia aurifacies, 424
Amphimallon majalis, 151
Anagasta kuehniella, 957, 1170
Anaphes flavipes, biology and ecology of, 1
Anaplecta hemiscotia, 84
Anapunaphyto, 426
apicata, 426
Anarete pritchardi, movement in a swarm, 584
Anatomy of Empoasca fabae alimentary canal, 1604
Anatopynia dyari, 903
Ancestry of Insecta, 1028
Ancylis comptana fragariae, 313
Andrena placida, ecology of, 1580
Androlaelaps sp., 1475
Anesthesia, safe levels of CO_2 for, 1046
Aneuretus simoni, poison apparatus, 1315
Aneurinita viridis, 84
Anommatochara, 982
revision of, 971
Anommatochara kohli, 982
Anopheles barberi, 1130
crucians, 1130
franciscanus, 786
freeborni, 786
freeborni, fatty acids of, 278
punctipennis, 774, 1132
quadrimaculatus, 1132
spp., 1527
Anoplius, 231
marginatus, 231
rectangularis, 231
stenotus, 231
Anoplodonta nigrirostris, 874
Anoplura, 402
Ant: collector, portable, 1348
larvae (Formicinae), 205
of shelf fungi, 383
Antheraea polyphemus, 1596
Anthicus cervinus, 766
melancholicus, 766
Anthocoris melanocerus, green peach aphid predator, 579
Anthonomus grandis, 36
grandis, antigens, 548
grandis, diapause, 1125
grandis, mating, 834, 1148
grandis, pupae, 125
grandis thurberiae, antigens, 548
grandis thurberiae, pupae, 125
Anthophila, 228
Anthrenus flavipes, feeding responses in larvae, 1210
Antigens of Anthonomis grandis, 548
Antipolistes anthracella, 1530
Anyphaenidae, 569
Aonidiella aurantii, 36
growth, 1009
reproduction, 1014
Apanteles aristoteliae, 281
baldufi, 463
carpatus, 1536
forbesi, biology, 1545
murtfeldtae, 560
paleacritae, 560
Aphaenogaster fulva, 384
rudis picea, 384
Aphalara sp., calthae group, 71
nr. pulchella, 71
nr. suaedae, 71
Apheloria reducta, 1061
Aphid, amino acids and wing determination in, 1201
new, from northeast India, 752
salivation and ingestion, measuring system to record, 180
species described by Patch, review of, 338
stage and virus transmission, 906
Aphididae, 60, 185
Aphiochaeta subciliata, 1588
Aphis, 1455
craccivora, 70
gossypii, 1214
spiraecola, 1214
Aphodius distinctus, 766
prodromus, 766
Apholate-resistant house fly strain, 1351
Aphycus stanleyi, 1444
Aphytis lingnanensis, tranformation of females into virgins, 332
Apidae, 5
Apiomerus crassipes, 1219
Apis mellifera, 514
organics of stings, 5
Apocephalus spp., 1320
Apodicrania termitophila, 1320
Aponomma concolor, 837
decorosum, 837
ecinctum, 837
fimbriatum, 837
hydrosauri, 837
lucasi, 724
pattoni, 724
simplex, 837
trachysauri, 837
Apterophora attophila, 1325
Apteroptera caliginosa, 1320
Aquatic insects, sampling in shallow-water habitat, 785
Aranae, 1538
Arboreal breeding sites of sandflies, 1141
Archimandrita marmorata, 85
tessellata, 85, 577
Archips argyrospilus, 313
cerasivoranus, 470
Archytas marmoratus, 1053
Ardeicola, new species of, 146
emersoni, 148
epiphanes, 151
meinertzhageni, 151
nippon, 148
theristicus, 151
Arenivaga (A.) apacha, 84
(A.) bolliana, 84
(Psammoblatta) cerverae, 84, 133
(A.) floridensis, 84
(P.) minuta, 84
(P.) roseni, 84
(A.) sp. A-D, 84, 133
Argas, 535, 744, 1113
bat ticks of genus, 1049
Argas (Persicargas) abdussalami, 744
(P.) arboreus, 747
(Carios) australiensis, 538
beklemischevi, 747
(Chiropterargas) boueti, 1052
(Chiropterargas) *ceylonensis*, 1049
(C.) confusus, 1052
(C.) cordiformis, 1052
(P.) *giganteus*, 1113
(A.) lagenoplastis, 538
(P.) persicus, 538, 747
(Carios) pusillus, 724
(P.) robertsi, 747
(P.) *robertsi*, parasite of Australian fowl, 535
(Carios) vespertilionis, 538
(P.) zumpti, chromosomes of, 787
(P.) *zumpti*, parasite of vulture, 744
Argasid species, keys to, 535
Argasidae, 535, 744, 1049, 1113
Argentine ant, Diploscapter lycostoma in glands of, 505
Argiope aurantia, 1219
Argogorytes, 1344
Argoravinia modesta, 426
Argyrotaenia quadrifasciana, 313
velutinana, 120, 313
growth by cannibalism, 1034
Arhyssus, revision of, 629
barberi, 633
bohemani, 629
confusus, 644
crassus, 633
distinctus, 639

hirtus, 649
lateralis, 70, 645
longirostratus, 648
nigristernum, 647
parvicornis, 650
peruensis, 642
punctatus, 646
schaeferi, 637
scutatus, 635
slateri, 651
tricostatus, 642
usingeri, 649
validus, 643
Army ants, and phorid flies, ectosymbiosis between, 1317
Arrhenotokous spider mite, response to selection, 1239
Arthrolips decolor, 766
Arthroplea, 702
bipunctata, 702
Arthropods, consumption of Heliothis spp. by, 613
defense mechanisms of, 610
defensive secretions, bird response to, 781
glass microneedles for injection of, 1042
predators of Nantucket pine tip moth, 1218
Aspen stands, borer attacks and, 1418
Aspirator, portable, 1348
Astata, in subfamily Astatinae, 844
alpaca, 850
bola, 851
chilensis, 848
cosquin, 849
dimidiata, 848
dispar, 848
gigas, 849
glabra, 845
lugens, 849
spinolae, 848
strigosa, 849
vaquero, 850
westcotti, 851
Astatinae, subfamily, 844
Atomoscelis modestus, 70
Attagenus megatoma, 1172
internal anatomy of, 765
Attaphila fungicola, 133
Aufius impressicollis, 70
Aulopus mellipes, 1537
Australian fowl, Argas *robertsi* parasite of, 535
Autographa californica, 405, 857, 861
Auturus evides, 1061

B

Baccha clavata, 1295
Bacteria in alfalfa weevil larvae, 791
Balsam woolly aphid, distribution of predator, 1344
Balta patula, 84
similis, 84
verticalis, 84
Banana plants and spiders, 878
Banded woollybear, feeding preferences of, 1221
Baris scolopaceae, 71
Bat ticks of genus Argas, 1049
Baygon, and CNS of American cockroach, 619
Bed bug, carbonyl produced by, 1338
Behavior (see Methods)
Belostoma bakeri, 786
flumineum, 786
Bembedinus g. godmani, 1344
Bembex arcuata, 1289
connexus, 1292
dentilabris, 1285
pallidipicta, 1285
separanda, 1294
Bembix, key and grouping, 1284
a. americana, 1293
americana *antilleana*, 1294
americana comata, 1295
americana nevadensis, 1295
americana spinolae, 1295
amoena, 1292
belfragei, 1290
beutenmulleri, 1298
cameroni, 1296
cinerea, 1293
citripes, 1297
comata nevadensis, 1295
festiva, 1296
foxi, 1294
frioensis, 1297
gillaspyi, 1290
h. hamata, 1296
hamata lucida, 1296
hamata nicolai, 1296
hinei, 1293
infumata, 1296
latifrons, 1292
magdalenae, 1291
melanaspis, 1297
mima, 1289
multipicta, 1297
muscicapa, 1294
nubilipennis, 1296
nubilosa, 1296
occidentalis, 1298
primaaestate, 1295
pruinosa, 1298
rugosa, 1291
sancta-rosae, 1296
sayi, 1292
simulans, 1295
stenebdoma, 1291
texana, 1297
troglodytes, 1297
truncata, 1296
u-scripta, 1289
Beridops maculipennis, 871
Berosus styliferus, 786
Bezzia, chromosomes of, 1524
glabra, 786
(Probezzia) sp., 1524
Bibliographia araneorum, 1334
Biological: aspects of Scolytus multistriatus host selection, 1248
observations on spotted alfalfa aphid distribution, 1627
Biology of: Alydus, 526
Anaphes flavipes, 1
Apanteles forbesi, 1545
Bolitotherus cornutus, 18
Campoplex haywardi, 26
Chironomus atrella, 1597
Colladonus geminatus, 598
Corydalidae, 1181
Deltacephalus sonorus, 77
Endria inimica, 802
evergreen bagworm, 38
Graminella nigrifrons, 1423
Hippelates collusor, 368
Karpinskiella paratomicobia, 1384
leafhopper species, 54
lesser peach tree borer, 809
Megaselia aequalis, 1587
mustard aphid, 259
Procecidochares stonei, 553
Psephenivorus mexicanus, 452
white-pine weevil, 280
Biometrical differentiation of mosquito larvae instars, 1372
Bionomics of: alligatorweed flea beetle, 1299
Choristoneura rosaceana, 285
hexapodous parasites, 463
Rhyacophila, 657
Biosystemics of Symphyta, 1389
Bird, taste response to arthropod defensive secretions, 781
Birds, Argas (Persicargas) *giganteus*, from, 1113
Blaberus craniifer, 85, 133, 576
discoidalis, 85, 133, 576
giganteus, 85, 133, 576
giganteus, amino acids in, 1027
parabolicus, 85
Black carpet beetle, internal anatomy of, 765
Black fly, collecting and rearing, 1072
fabrics to collect larvae, 960
Blacklight trapping studies, mating of noctuid moths in, 405
Black widow spider, molting behavior of, 591
Blatta orientalis, 84, 133
Blattaria, 503
oöthecae, 83
ovarioles, 132
reproduction, 571
Blattella germanica, 83, 133, 577, 1038, 1324
germanica, cholinesterase inhibitors in, 1578
humbertiana, 84, 133
lituricollis, 84
unicolor, 133
vaga, 84, 133
Blattisocius dentriticus, 941
keegani, 132
Blissus, revision of, 239
a. arenarius, 243
arenarius maritimus, 244
barberi, 245
breviusculus, 246
insularis, 245
iowensis, 246
leucopterus hirtus, 242
l. leucopterus, 241
minutus, 249
nanus, 248
sweeti, 247
Blood meal occurrence in Corethrella, 1336
Bluegrass, microsporidian diseases of sod webworms in, 544
Boettcheria pyrrhopyga, 426
Bolitotherus cornutus, biology of, 18
Boll weevil, mating, 834, 1148
Bollworm, lipid requirements of, 120
Bombyx mori, 1068
histology, 1064
Book reviews, 236, 1617, 1629
Boophilus microplus, 837
Borer attacks and aspen stands, 1418
Bovine manure for overwintering Coleoptera, 765
Brachycara slossonae, 872
Brachymeria discreta, 1531
Brachymyrmex depilis, 210
Brachythemis contaminata, fat and glycogen distribution in, 1033
Bracon hebetor, 165
hebetor, modification of life span, 541
pini, 281

serinopae, isolation of sarcosomes, 1621
sp., 281
sperm, chemosterilant studies on, 164
variabilis, 467
Braconidae, 8, 164, 233, 541
Brevipalpus pini, 1500
Broccoli, green peach aphid on, 579
Brood rearing by honey bees, 514
Brown soft scale, rearing and parasites, 1443
Bruchidae type-specimens in U.S. museums, 1266
Bruchus alboscutellatus, 1267
amicus, 1269
arenarius, 1271
arizonensis, 1270
atomus, 1267
auctus, 1270
aureolus, 1267
bisignatus, 1267
biustulus, 1267
bivulneratus, 1270
brunneostictus, 1267
calvus, 1267
chiricahuae, 1267
collusus, 1267
compressicornis, 1267
coryphae, 1269
crenatus, 1269
cruentatus, 1270
depressus, 1270
desertorum, 1268
discolor, 1270
discopterus, 1270
distinguendus, 1267
exiguus, 1267
flavicornis, 1267
floridae, 1267
fraterculus, 1267
fumatus, 1267
gibbithorax, 1270
griseolus, 1267
impiger, 1269
inornatus, 1269
inquisitus, 1267
julianus, 1269
knulli, 1269
limbatus, 1270
lobatus, 1267
longistilus, 1267
macrocerus, 1271
macropthalmus, 1267
major, 1269
mixtus, 1267
nigrinus, 1270
ochraceus, 1268
ochreolineatus, 1269
pauperculus, 1268
pectoralis, 1268
perforatus, 1268
perplexus, 1268
placidus, 1269
prosopis, 1268
prosopoides, 1268
protractus, 1270
pruinosus, 1270
pugiunculus, 1268
pulloides, 1268
pullus, 1268
pygidialis, 1270
pythonicus, 1270
quadridentatus, 1268
rufescens, 1268
rufovittatus, 1268
schaefferi, 1268
schrankiae, 1268
seminulum, 1268
serratifemur, 1269
simulans, 1270
sordidus, 1270
speciosus, 1268
subaeneus, 1271
subserripes, 1268
texanus, 1270
ulkei, 1269
uniformis, 1268
Buenoa scimitra, 786
Butyl paraoxon against face fly, 398
Byrsotria fumigata, 85, 133, 504, 576, 1477

C

^{14}C-labeled acetate and glucose, incorporation into triglycerides, 1036
Caenidae, 700
Caenis, 714
anceps, 714
forcipata, 714
jocosa, 714
simulans, 716
Calcium content of Mycodiplosis alternata, 234
California red scale, growth, 1009
reproduction, 1014
Caliothrips fasciatus, 70
Calliephialtes comstockii, 1121
Calliphora vicina, 365
Calliphoridae sp., 1313
Callosamia angulifera, 934
Caloglyphus anomalus, culture, 56
rhizoglyphoides, 941
spp., 1031
Calomyrmex impavidus, 220
Caloparyphus crucigerus tahoensis, 872
Camponotini, 215
Camponotus, 216
(Myrmophyma) adami, 217
(Pseudocolobopsis) alboannulatus, 219
americanus, 216
(M.) arcuatus, 217
(Tanaemyrmex) atlantis, 220
(T.) barbaricus, 220
(P.) claviscapus, 219
(M.) ephippium, 218
(M.) evae, 218
fallax decipiens, 1531
(Dinomyrmex) famelica, 217
(Myrmaphaenus) fastigatus verae, 217
(Colobopsis) fictor, 217
(Myrmophyma) froggatti, 218
herculeanus, 216
(T.) humilior, 220
(Myrmophyma) innexus, 218
(Myrmosaulus) intrepidus, 218
laevigatus, 216
ligniperdus, 217
(M.) molossus, 218
nearcticus, 1531
noveboracensis, 217
(P.) pallescens, 219
pennsylvanicus, 217
(T.) santosi, 220
(Orthonotomyrmex) sp., 219
(M.) suffusus, 219
(T.) vicinus, 220
Campoplex frustranae, 1220
frustranae, parasite of Nantucket pine tip moth, 1430
haywardi, biology of, 26
spp., 1430
Camposcopus aclerivorus, 471
Canada balsam, mounting insects in, 783
Cantharis sp., 766
Capitophorus hippophaes *indica*, 752
vernoniae, 752
Capucina patula, 85, 133
Carbamates, action in American cockroach, 618
Carbaryl, and CNS of American cockroach, 619
effect on Spodoptera littoralis, 1327
Carbonyl produced by bed bug, 1338
Cardiochiles nigriceps, development, 561
response in Heliothis virescens, 8
Cariblatta lutea, 84, 133
minima, 84, 133
sp. A, B, 84, 133
Carneocephala flaviceps, 1434
sagittifera, 1344
triguttata, 70
Carpenter bee behavior, 884
Carpenterworm, 258
gallery construction by, 72
Carpocapsa pomonella, 313, 1123
diapause and nondiapause larvae compared, 1611
Caryobruchus acrocomiae, 1269
buscki, 1269
lipasmatus, 1269
pararius, 1269
pergandei, 1269
scheeleae, 1269
veseyi, 1269
Cataglyphis albicans, 213
(Machaeromyrma) bombycina, 214
viatica, 214
Catorama sp., 281
Cecidomyiidae, 234
Centrioles in insect spermatids, 1037
Cephalonomia sp., 281
Cerambycidae, 255
Ceratagallia dondia, 70
Ceratinoptera picta, 84
Ceratopogonidae, prey of Oxybelus emarginatum, 1029
Cercyon pygmaeus, 766
quisquilius, 766
Cereal leaf beetle, egg parasite of, 1
lipid synthesis in, 1164, 1167
wheat pubescence as deterrent, 900
Chaetocnema sp., 71
Chaetopleurophora bohemanni, 1588
erythronota, 1588
pygidalis, 1588
sp., 1588
spinosior, 1588
Chaetoravinia *posticoda*, 426
Chalcoela iphitalis, 1532
Chalybion californicum, 231
Chaoboridae, ecology, 1173
Chaoborus albatus, 1180
flavicans, 1180
punctipennis, 1130, 1180
Chauliodes pectinicornis, 1185
Cheiropacus sp., 281
Cheletomorpha lepidopterorum, 941
sp., 941
Chelonus texanus, 1053
Chemical, chemically (see Methods)
Cheyletia flabellifera, 941
sp., 941
Cheyletus eruditus, 941
malaccensis, 941
trouessarti, 941

Chironomidae, 593
ecology of, 1173
tolerance to stress factors, 903
Chironomus atrella, biology, 1597
atroviridis, 1175
attenuatus, 1174
halophilus, 1599
n. sp. A-B, 1173
n. sp. C-D, 1174
paganus, 1173
plumosus, 1173
riparius, 903
spp., 1527
staegeri, 1173
tentans, 1174
Chlamydatus associatus, 70
Chlordane, sublethal effects on Periplaneta americanum, 910
Chloroethyl paraoxon against face fly, 398
Chloronesia cochliomyia, 428
Chloropidae, prey of Oxybelus emarginatum, 1029
Cholesterol in house flies, 292
Cholinesterase inhibitors in German cockroach, 1578
Chonocephalus, 1319
buccatus, 1320
Chorisia fulvotestacea, 84, 133
Chorisoneura apolinari, 84
Choristoneura pinus, artificial diet, 362
rosaceana, 313
bionomics of, 285
Chromatopoda annulipes, 871
Chromosomes: and sex determination in hard ticks, 837
number in leaf-cutter bee, 782
Chromosomes of: Nilobezzia and Bezzia, 1524
ticks, 787
Chrysomelidae, 44
Chrysopa carnea, 614
plorabunda, 1219
rufilabris, 614
sp., 568, 615
vittatus, 223
Cicadellidae, 54, 74, 77
Cicindela flavopunctata rectilatera, 1038
Cimex lectularius, carbonyl produced by, 1338
Circotettix rabula, 1542
Circulifer tenellus, 70
Cixius cultus, 71
Cleiodogona sp., 1062
Cleidogonidae, 1062
Clubionidae, 569
Cnephia dacotensis, 960, 1072
mutata, 1072
taeniatifrons, 1073
CO_2, safe levels for insect anesthesia, 1046
Coadaptive process in Tetranychus urticae, 1055
Coccinella novemnotata, 1219
Coccophagus lycimnia, 1443
Coccotydaeolus sp., 941
Coccus hesperidum, 36, 1443
Cochliomyia hominivorax, 65
hominivorax, oögenesis in, 1188
macellaria, 1294
Cockroach, amino acids in, 1027
cuticle, perforations in, 1346
host preference of mite infesting, 1475
Cocooning trays in rearing greater wax moth, 1341
Codling moth, diapause and nondiapause larvae compared, 1611
Coeloides pissodis, 281
Coelotanypus concinnus, 1179
Coleomegilla quadrifasciata octodecimpustulata, 1304
Coleophora pruniella, 470
Coleoptera, 10, 18, 44, 125, 227, 235, 255, 290, 376, 450, 452, 476, 485, 493, 517, 531, 548, 550, 587, 610, 755, 834, 900, 971, 1125, 1148, 1158, 1164, 1167, 1197, 1210, 1224, 1266, 1279, 1299, 1340, 1468, 1561, 1626
overwintering in manure, 765
Colias eurytheme, 959
Colladonus clitellarius, 1344
geminatus, biology of, 598
montanus, 70
Collecting device for mites, 1030
Colletes consors pascoensis, 1581
Collops balteatus, 614
vittatus, 614
Colobopsis, subgenus, 217
Colonization of Culicoides furens, 1486
Colopterus truncatus, 281
Color vision of stable fly, 789
Colorado potato beetle, feeding behavior, 44
host plant selection, 493
phagostimulative substances from host, 476
plant substances in food, 485
Colpocephalum, of the Cuculiformes, 816
ignotum, 817
phasianini, 818
sinensis, 819
Comparison of radiation profiles of Acheta and Tenebrio, 1359
Cone moth, ecology, 1462
Coniontini, generic classification in, 376
Conioscinella hinkleyi, 281
sp., 281
Conoponidae, 276
Conotrachelus nenuphar, 151
Contarinia sorghicola, 568
Copidosoma celaenae, 1545
Copulatory apparatus in Menacanthus stramineus, 788
Corethrella, blood meal occurrence in, 1336
brakeleyi, 1336
n. sp. no. 1, 1336
Coriselia sp., 786
Corizus annulatus, 642
brevipilis, 637
indentatus, 637
tuberculatus, 637
Corn inbred lines, leafhoppers in, 1433
Corn leaf aphid, flight activity of, 60
Corn stunt virus, Graminella nigrifrons vector of, 1423
Coroxon against face fly, 398
Corydalidae, biology of, 1181
Corydalus cornutus, 1182
Corythuca morrilli, 70
picturata, 566
Cosmobruchus russelli, 1269
Cosmochthonius sp., 941
Cossidae, 72, 255
Cotton, arthropods attacking Heliothis spp. on, 613
Crambus teterrellus, 545
teterrellus, oviposition rhythm, 1481
trisectus, 544
Cremastus sp., 281
Crematogaster lineolata, 384
punctulata, 384
sp., 1324
vermiculata, 384
Cremersia sp., 1323
spinicosta, 1320
Creontiades femoralis, 70
Cricotopus sylvestris, 786
Cryptocampus mucronatus, 1401
Cryptocercus punctulatus, 84, 133
Cryptochironomus digitatus, 1179
psittacinus, 1179
Cryptothrips pini, 1219
Cuculiformes, Colpocephalum of, 816
Culex erraticus, 1132
pipiens, 118, 1138, 1527
pipiens, fatty acid changes, 774
quinquefasciatus, 1132
restuans, 119, 1132
salinarius, 1132
tarsalis, 786, 1132
territans, 117, 1132
Culicidae, 116, 385
Culicoides furens, colonization, 1486
Culicoides guttipennis, 1489
melleus, 1489
nubeculosus, 1489
spp., 1524
variipennis, 1489
Culiseta inornata, 1038, 1132
melanura, 117
Cunaxa sp., 941
womersleyi, 941
Curculionidae, 125
Cuterebridae, 23
Cydia packardi, 468
Cymatodera undulata, 1121
Cynipidae, 158
Cyphomyia wiedemanni, 871
Cytogenetics of ticks, 787, 837
Cytology of oögenesis in screw-worm flies, 1188
Cyzenis albicans, 1381

D

Dactynotus (D.) eupatoricolens, 356
(Lambersius) gravicornis, 356
(D.) impatiensicolens, 350
(D.) lanceolatus, 359
Dacus dorsalis, 233
Dahlbruchus conradti, 1269
Dalbulus elimatus, 77
maidis, 77
Damselfly appendages, regeneration of, 784
Danaus gilippus, 1343
plexippus, 1343
sp., 1123
Dasyhelea grisea, 786
pollinosa, 786
Dasymutilla castor, 1531
mediatoria, 1531
DDT, effect on Spodoptera littoralis, 1327
Defense, defensive (see Methods)
Delomerista diprionis, 1156
japonica diprionis, 1156
Delphacodes basivitta, 1344
sp., 71
Deltocephalus fuscinervosus, 70
grex, 71
sonorus, 71
sonorus, biology, 77
spp., 1434

Dendroblatta sobrina, 84, 133
Dendroctonus jeffreyi, 522
monticolae, 521
ponderosae complex, biological notes on, 517
pseudotsugae, Karpinskiella parasitizing, 1384
Densitometer in insect taxonomy, 230
Deraeocoris brevis, 70
Dermacentor auratus, 724
variabilis, use of old-field habitats, 679
Dermatobia hominis, gamma radiation effects on, 23
Deropeltis erythrocephala, 84
Developmental synchrony in Aedes taeniorhynchus, 889
Device for: obtaining flies, 548
pulling glass microneedles, 1042
Dexosarcophaga, 428
aduncta, 428
currani, 428
ecitocola, 429
halli, 429
lopesi, 430
malaisei, 431
retusa, 431
varia, 429
DFP against face fly, 398
Diabrotica balteata, 71
undecimpunctata, 71
u. howardi, 1279
Diadegma comptoniellae, 468
sp., 1156
Dialictus zephyrus, 1537
Diapause (see Methods)
Diatraea grandiosella, morphology of, 1143
saccharalis, 1122
microflora of, 1427
Dibrachys cavaus, 1531
n. sp., 1531
sp., 1537
Dichelacera *abbreviata*, 381
Dichlorvos against face fly, 398
Dicophora appretiata, 1319
Dicrotendipes modestus, 1179
Dictynidae, 569
Dictyoptera, 226, 910
Dicymolomia pegasalis, 1534
Dicyphoma schaefferi, 871
Diel periodicity of pine root collar weevil, 1490
Diet, dietary (see Methods)
Digestive system of Heliothis zea, 1478
Digger wasps, prey upon leafhoppers, 1343
Dikraneura absenta, 71
Dimethoxon against face fly, 398
Diocophora sp., 1320
Diodontolepis, 205
spinisquamis, 205
Dioryctria abietella, 1121
amatella, 1121
Diploptera punctata, 85, 133
Diploscapter lycostoma in glands of Argentine ant, 505
Dipodomys californicus, 405
deserti, 405
merriami cimiolus, 405
merriami nevadensis, 405
ordii, 405
ornatus, 405
phillipsii, 405
Diptera, 13, 23, 65, 126, 158, 222, 234, 276, 293, 368, 385, 397, 553, 584, 675, 690, 789, 827, 870, 889, 961, 1020, 1045, 1072, 1188, 1200, 1215, 1274, 1317, 1336, 1344, 1408, 1446, 1486, 1524, 1547, 1587, 1597, 1622, 1624
parasites from, 1306
Dohrniphora cornuta, 1320, 1588
ecitophila, 1319
femoralis, 1320
paraguayana, 1320
sp., 1320
Dorylus (Anomma) nigricans, 983
nigricans arceus, 983
nigricans burmeisteri molestus, 979
nigricans burmeisteri ornata, 983
nigricans burmeisteri rubellus, 981
nigricans sjoestedti, 983
nigricans sjoestedti rufescens, 983
sp., 983
(A.) wilverthi, 981
Draeculacephala portola, 1434
Drepanaphis, 186
acerifoliae, 187
carolinensis, 189
choanotricha, 190
granovskyi, 192
idahoensis, 193
kanzensis, 194
keshenae, 195
knowltoni, 195
monelli, 196
nigricans, 197
parva, 197
sabrinae, 198
saccharini, 198
simpsoni, 199
spicata, 200
tissoti, 200
utahensis, 201
Dried-fruit moth, lipids in larvae, 1035
Drosophila affinis, 161
algonquin, 161
athabasca, 161
carcinophila, 675
endobranchia, associated with land crabs, 675
immigrans, 162
melanogaster, 160
putrida, 162
robusta, 162
species, defense reactions of, 158
spp., 811
Drosophilid associated with land crabs, 675
Drosophilidae, 158
Drunella, subgenus, 712
Dryinidae, 805
Dryops, 455
Duochaeta, 431
veniseta, 431
Dye marking of mites, 1031
Dysdercus koenigii, X-irradiation effect on, 1107

E

Ecitomyia wheeleri, 1318
Eciton burchelli, 1318
dulcius, 1318
dulcius crassinode, 1319
hamatum, 1318
mexicanum, 1318
quadriglume, 1318
vagans, 1318
Ecitophora bruchi, 1325
collegiana, 1318
comes, 1318
fidelis, 1318
parva, 1322
pilosula, 1318
sp., 1320
varians, 1318
Ecitoptera, 1318
centralis, 1319
concomitans, 1321
subciliata, 1319
Ecituncula aptera, 1323
glandularis, 1318
halterata, 1318
spp., 1318
tarsalis, 1318
Ecological responses of Ostrinia nubilalis, 140
Ecology of: Anaphes flavipes, 1
Andrena placida, 1580
Chironomidae and Chaoboridae, 1173
cone moth, 1462
insect swarms, 584
millipedes, 1059
mosquitoes, 1129
smoke fly, 1200
Ectobius lapponicus, 85, 133
pallidus, 85
panzeri, 85
sylvestris, 85
Ectomyia, 432
jubilator, 432
Ectopria nervosa, 456
Ectopscopsis cryptomeriae, 1530
Ectosymbiosis between flies and ants, 1317
Egg: cannibalism of Argyrotaenia velutinana, 1034
production of Oncopeltus fasciatus, 1573
temperature and humidity effect on hatch, 1606
Egyptian cotton leafworm, histopathology of midgut, 1326
Elasmus atratus, 474
Electric barrier confinement of greater wax moth, 1341
Electron microscope study of hypopharynx of Aedes aegypti, 1274
Electrophysiological action of carbamates in American cockroach, 618
Ellipsidion australe, 84, 577
Elsianus, 455
Embryology of house fly, 13
Emdenimyia, 432
banksi, 432
Emergence of Hexagenia bilineata, 1235
Empoasca abrupta, 71
decora, 71
fabae, anatomy of alimentary canal, 1604
fabae, reproductive-systems development in, 316
solana, 71
spp., 1434
Enallagma boreale, 784
Enaphalodes rufulus, 255
Encyrtus lecanorium, 1444
Endocrine: control in Leucophaea maderae, 503
organs of Heliothis zea, 965
Endria inimica, 1435
biology, 802
life cycle, 74
Endrin, effect on Spodoptera littoralis, 1327

Ennomos subsignarius, 557
Enoclerus nigrifrons, 281
nigripes, 281
sp., 1219
Enterobacter cloacae, 792
Entomological review, 772, 1334
Epeorus, 702
(Iron) suffusus, 704
Ephemera, 716
guttulata, 716
simulans, 717
varia, 717
Ephemerella, 712
new synonymy in, 1044
subgenus, 712
Ephemerella (Eurolophella), 700
(Drunella) cornuta, 712
(Serratella) deficiens, 712
(E.) dorothea, 700
(E.) excrucians, 700
(E.) invaria, 700
jacobi, 1044
(D.) lata, 700
orestes, 1044
(E.) prudentalis, 700
(E.) subvaria, 700
(E.) temporalis, 700
(D.) walkeri, 700
Ephemerellidae, 700
Ephemeridae, 716
Ephemeroptera, 1044, 1235
eggs, morphology of, 696
Ephoron, 719
album, 719
leukon, 719
Epicauta pennsylvanica, 687
Epilampra conferta, 85
cribrosa, 85
Epithectis sphecophila, 1530
Epitrix hirtipennis, 545
Erannis tiliaria, 557
Erigonidae, 568
Eristalis albifrons, 1294
vinetorum, 1294
Ernobius sp., 281
Errata, 484, 856
Erwinia rhapontici, 792
Eryngiopus sp., 941
Erythroneura elegantula, 71
Esenbeckia *painteri*, 380
semiflava, 380
semiflava *melanista*, 380
Eserine sulfate against face fly, 398
Estigmene acrea, 71, 1068, 1124
unisexual strain, 949
Euandroblatta propera, 84
Eublaberus distanti, 85, 133, 575
posticus, 85, 133, 572, 1477
Eucelatoria armigera, 1053
Euglena gracilis, 1412
Euglossa cordata, 885
Eulema polychroma, 885
Eulophidae, 450, 452
Euparyphus brevicornis, 872
limbrocutris, 872
Eupelmella vesicularis, 474
Eupelmus pini, 281
Euphorocera omissa, 1054
tachinomoides, 1054
Euphyllodromia angustata, 84
Eupogonius tomentosus, 281
Eupteromalus dubius, 473
European: chafer, ionizing radiation effects on, 151
corn borer, and host variety, 1521
corn borer, nutrition, 459
pine shoot moth, mating, 920
Eurycotis biolleyi, 84
decipiens, 84, 133
floridana, 84, 133
Eurylophella, subgenus, 712
Eurymerodesmidae, 1062
Eurymerodesmus hispidipes, 1062
Euryneura robusta, 872
Eurytoma crassineura, 281
pini, 1220
pissodis, 281
sp., 281
Euryuridae, 1061
Eusattodes, 378
laevis, 378
Eusattus, 378
acutangulus, 378
acutus, 378
agnatus, 378
brevipennis, 378
brevis, 378
compositus, 378
congener, 378
convexus, 378
coquilletti, 378
corrosus, 378
depressulus, 378
depressus, 378
difficilis, 378
dubius, 378
elongatulus, 378
explanatus, 378
knausi, 378
lobatus, 378
mexicanus, 378
nanus, 378
nitidipennis, 378
obliteratus, 378
oblongulus, 378
peropacus, 378
politus, 378
pons, 376
productus, 378
puncticeps, 378
quadratus, 378
reticulatus, 378
rotundus, 378
sculptus, 378
secutus, 378
spaldingi, 378
subnitens, 378
subsericeus, 378
subvelutinus, 378
turgidus, 378
vanduzeei, 378
venosus, 378
vicinus, 378
woodgatei, 378
Euthlastoblatta compsa, 84
Euthyrrhapha pacifica, 84
Euura, stem-galling, 1389
albiricta, 1405
(E.) amerinae, 1396
atra, 1396
bakeri, 1397
bebbianae, 1397
brachycarpae, 1401
breweriae, 1405
cooperae, 1397
cosensii, 1401
exiguae, 1402
geyerianae, 1405
insularis, 1401
lasiolepis, 1406
lemmoniae, 1406
macgillivrayi, 1396
mucronata, 1401
orbitalis, 1397
propinqua, 1397
salicicola, 1399
salicisnodus, 1396
scoulerianae, 1406
subg., 1401
Euzosteria nobilis, 84
Evergreen bagworm moth, biology of 38
Evolution of: antenna in Stratiomyidae, 870
organophosphorus resistance in two-spotted spider mite, 1255
Eye gnats, flagella of, 1547
Exeristes comstockii, 281, 1465
Exitianus exitiosus, 1434
picatus, 71

F

Fabrics to collect black fly larvae, 960
Face fly, acetylcholinesterase from, 397
gonadotrophic cycles in, 690
nutrition effects in, 827
Fahrenholzia *boleni*, 402
ehrlichi, 404
fairchildi, 404
ferrisi, 404
hertigi, 404
microcephala, 404
pinnata, 404
reducta, 404
schwartzi, 404
texana, 404
tribulosa, 404
zacatacae, 404
Falagria dissecta, 766
Famoxon against face fly, 398
Fannia sp., 1313
parasites from, 1306
Farrimyia, 434
megista, 434
Fat and glycogen distribution in Brachythemis, 1033
Fatty acid changes of Culex p. pipiens, 774
Feature photograph, 237, 556, 793, 1048, 1350, 1632
Feeding (see Methods)
Feltia subgothica, 1546
subterranea, 861
Figites spp., 1313
striolatus, 1313
Fir engraver, estimation of oviposition by, 227
Flagella of eye gnats, 1547
Flexamia sp., 1435
Flies, device for obtaining, 548
Flight mill for mosquitoes, 1507
Florida queen butterfly, insecticide poisoning and pupation of, 1343
Fomes applanatus, 18
Forage plant resistance to Melanoplus sanguinipes, 739
Formica, 214
fusca, 215
integra, 384, 1219
polyctena, 215
(Raptiformica) sanguinea, 215
schaufussi dolosa, 1219
ulkei, 215
Formicidae, 205
Formicinae, 205
Formicini, 211
Frankliniella occidentalis, 70
Frass of insects in oak, 255

Frequency of Hessian fly in fields, 1446
Frontinella communis, 1219
Fulvius imbecilis, 566
Fume ventilator for dissecting microscopes, 1043
Fusarium solani, nutritional substrate requirement, 1473
relationship with Xyleborus ferrugineus, 1473

G

Gall-forming aphids of poplar, 509
Galleria mellonella, 1068
gynandromorphism, 1336
specificities of esterases of, 806
Gamma radiation effects on tórsalo, 23
Gelis sp., 281, 472, 1156, 1546
tenellus, 472
Geminate leafhopper, biology of, 598
Gemmura, n. subg., 1401
Genitalic homologies in sexes in Tribolium castaneum, 550
Geocoris pallens, plant feeding by, 232
punctipes, 614
uliginosus, 614
German cockroach, cholinesterase inhibitors in, 1578
Gesomyrmecini, 210
Gesomyrmex, 210
luzonensis, 210
Giant silkworm moth, rearing, 1594
Gigantiopini, 215
Gigantiops, 215
destructor, 215
Gislenia australica, 84, 133
Glass: fiber-silica gel sheets, 1026
microneedles, pulling device for, 1042
Glycyphagus destructor, 941
privatus, 941
Glyphidocera sp., 384
Glyphipterygidae, 228
Glyptina cerina, 71
Glyptotendipes barbipes, 903
paripes, 1179
Gnaphosidae, 569
Goes pulverulentus, 255
Gonadotrophic cycles in face fly, 690
Gonatopus ?, 805
Gorytes canaliculatus, 1344
Grain sorghums, spiders in, 567
Graminella nigrifrons, 1344, 1434
field biology of, 1423
Granaries, mite populations in Japanese, 938
Graphocephala versuta, 1434
Grapholitha molesta, 313
Grasshopper diets, 1539
Greater wax moth, confinement and trays in rearing, 1341
gynandromorphism in, 1336
specificities of esterases, 806
Green peach aphid, Anthocoris predator of, 579
Griffiniella larvalis, 85
Gromphadorhina portentosa, 85, 133, 577
host preference of a mite infesting, 1475
Gynandromorphism in Galleria mellonella, 1336
Gypsy moth, mating behavior of, 768

H

Habitat (see Methods)
Habrobracon juglandis, 165
Habrocytus phycidis, 473
sp., 281, 473
Habrophlebia vibrans, 708
Habrophlebiodes americana, 708
Haemaphysalis (H.) atherurus, 725
bancrofti, 837
bispinosa, 837
bremneri, 837
(Kaiseriana) hystricis, 725
(Kaiseriana) lagrangei, 725
longicornis, 837
(Rhipistoma) sp., 725
Haematobia irritans, 1045
Haemolaelaps casalis, 941
sp., 941
Halictophagus mackayi, 805
Haloxon against face fly, 398
Hapleginella conicola, 281
Haplothrips (?) clarisetis, 70
Hard ticks, chromosomes and sex determination in, 837
Harmostes fraterculus, 70
Harrisina americana, 1532
Hedia nubiferana, 313
Hedriodiscus binotatus, 874
vertebratus, 874
Helicobia, 434
ajax, 434
lagunicula, 434
morionella, 434
rapax, 434
resinata, 434
Heliothis obsoleta, 1122
phloxiphaga, 861
spp., arthropod consumption of, 613
spp., parasites reared from, 1053
virescens, 372, 561, 613, 857, 861, 1053
virescens, diapause and development, 953
virescens, influence of light on, 1272
virescens, substance in elicits searching response, 8
zea, 36, 372, 405, 568, 613, 687, 857, 861, 934, 956, 1053, 1122, 1545
diapause and development, 953
digestive system, 1478
endocrine organs, 965
light influence on, 1272
lipid requirements, 120
Helluomorphoides, defensive spray, 610
ferrugineus, 610
latitarsis, 610
Hematophagous insects, host response on feeding and digestion, 1045
Hemerobius stigmaterus, 1220
Hemiptera, 232, 413, 416, 526, 629, 1044, 1107, 1138, 1495, 1566, 1573
from pig carrion, 565
Hemlock sawfly, parasites of, 1155
Hemocytes of Scutigerella immaculata, 1028
Henschoutedenia occidentalis, 577
procera, 577
tectidoma, 577
Heptagenia, 704
diabasia, 704
hebe, 700
juno, 704
pulla, 704
Heptageniidae, 700
Hermetia aurata, 871
Hesperoleon sp., 1038
Hessian fly, frequency, 1446
Heterelmis, 455
Heteromys a. anomalus, 405
desmarestianus, 404
goldmani, 404
sp., 404
Heteroptera, 239, 542, 578
Hexacylloepus, 455
Hexagenia, 717
bilineata, emergence of, 1235
limbata occulta, 717
limbata venusta, 717
m. munda, 717
rigida, 719
Hexapodous parasites, bionomics of, 463
Hickory shuckworm, larval instars of, 1620
Hippelates bishoppi, 1547
collusor, reproductive biology of, 368
eye gnats, flagella of, 1547
pallipes, 1547
pusio, 1547
Hippodamia convergens, 568, 615, 1219
Histiogaster spp., 1031
Histology of: ovaries of Bombyx mori, 1065
southern corn rootworm, 1279
white pine shoots, 962
Histopathology of midgut of Spodoptera littoralis, 1326
History and reproduction of Spalangia cameroni, 1436
Holopterina longipalpis, 1321
sedula, 1318
Homadaula, 228
albizziae, 229
anisocentra, 229
anisocentra, rearing techniques, 919
calamitosa, 229
coscinopa, 228
dispertita, 228
lasiochroa, 229
myriospila, 228
poliodes, 228
punctigera, 229
Homalophora epichaeta, 1321
Homoeogamia mexicana, 84
Homoptera, 54, 60, 74, 77, 185, 239, 317, 338, 598, 752, 802, 962, 1009, 1014, 1423, 1433, 1449, 1604, 1627
Honey, Trogoderma glabrum infests, 1621
Honey bee, brood rearing by, 514
organics of stings, 5
Hoplitimyia constans, 873
Hoplopleuridae, 402
Horn flies, rearing techniques, 1045
Host: preference of a mite, 1475
variety and European corn borer, 1521
House fly, apholate-resistant, 1351
early cleavage in eggs, 1624
embryology of, 13
ovarian growth and oögenesis in, 1351
protein effect on reproduction, 456
response to sex pheromone, 1215
Hunterellus (= Ixodiphagus) mysorensis, 725
Hyadaphis pseudobrassicae, 259
Hyalomma (H.) erythraeum, redescription of, 1228
Hyalophora cecropia, rearing, 1594
Hybomitra lasiophthalma, 223
Hybridization between Aedes hendersoni and A. triseriatus, 1020

Hydromermis *conopophaga* parasitizing midges, 593
Hydrophilus triangularis, 786
Hygrotus sp., 786
Hylobius radicis, 1365, 1490
Hymenoptera, 1, 5, 8, 26, 158, 164, 205, 233, 332, 383, 450, 452, 505, 541, 542, 561, 625, 782, 844, 884, 1155, 1284, 1315, 1343, 1354, 1384, 1389, 1430, 1528, 1545, 1580, 1621
Hymenopterous: parasites, rearing, 1443
poison apparatus, 1315
Hypera postica, 791, 1224
photoperiod and diapause in, 531
phototactic response, 1561
Hyphantria cunea, 687
Hypoaspis aculeifer, 941
sp., 941
Hypocera molluscovora, 1588
mordellaria, 1588
Hypopteromalus inimicus, 474
tabacum, 560
Hyporhicnoda humilior, 85
litomorpha, 85, 133
Hyssopus johannseni, 1121

I

Icerya, 1455
Ichneumonidae, 26
Idiocerus apache, 1344
perplexus, 1344
Indian-meal moth, sex attractant of, 1260
Insect (see Methods)
Ionizing radiation, effects on European chafer, plum curculio, and large milkweed bug, 151
Iphiseius *mumai*, 1459
Ips confusus, morphology of, 10
pini in Appalachian Mountains, 235
Iridiomyrmex analis, 1323
geinitzi, 215
goepperti, 215
humilis, Diploscapter lycostoma in glands, 505
Ischnocera, 146
Ischnoptera deropeltiformis, 84
panamae, 84, 133
r. rufa, 84, 133
Ischnura cervula, 784
perparva, 784
Isia isabella, feeding preferences of, 1221
Isolan against face fly, 398
Isoptera, 230
of shelf fungi, 383
Isotol, honey bee brood rearing in response to, 514
Itoplectis conquisitor, 281, 470
montana, 1156
quadricingulatus, 1156
Ixodes cornuatus, 837
holocyclus, 837
tasmani, 837
Ixodoidea, 535, 744, 837, 1049, 1113, 1228
of Vietnam, 722

J

Jagrehnia invisa circumdata, 577
testacea, 577
Jalysus wickhami, 70

K

Karpinskiella paratomicobia, biology of, 1384
Keys to argasid species, 535
Khapra beetle, slide mount preparation of, 1623
Kleemania plumosus, 941

L

Labena g. grallator, 281
Labidus coecus, 1318
praedator, 1318
Labostigmina johnsoni, 873
Laccophilus atristernalis, 786
decipiens, 786
Lachesilla sp., 1530
Lacinipolia renigera, Apanteles parasite of, 1545
Lamachus spp., 1156
Lampeyresia toreuta, eccology of, 1462
Lampoterma sp., 281
Lamproblatta albipalpus, 84, 133
Land crabs, drosophilid associated with, 675
Large milkweed bug, egg production and male activation, 1573
ionizing radiation effects on, 151
melanism in, 542
mitotic activity of hemocytes of, 413, 416
sexual behavior of, 1566
Larval instars of hickory chuckworm, 1620
Lasioderma serricorne, 1172
Lasius, 211
alienus, 384
flavus, 211
fulignosus, 211
neoniger, 211
niger, 211
schiefferdeckeri, 215
umbratus, terpenes in mandibular glands, 1354
Laspeyresia caryana, larval instars of, 1620
ingens, infesting longleaf pine cones, 1116
Latheticus oryzae, 550
Latrodectus mactans, molting behavior of, 591
Lattiblattella sp. nov., 84
zapoteca, 84
Laxta granicollis, 85
Leaf-cutter bee, chromosome number in, 782
Leafhoppers, digger wasps prey upon, 1343
in corn inbred lines, 1433
Leiodinychus krameri, 941
sp., 941
Lepidoptera, 8, 38, 72, 120, 228, 255, 285, 362, 372, 405, 459, 557, 613, 795, 809, 857, 861, 921, 949, 953, 965, 1035, 1036, 1053, 1064, 1143, 1218, 1221, 1272, 1343, 1462, 1466, 1478, 1611, 1620
of shelf fungi, 383
Lepinotus reticulatus, 1530
Lepisma saccharina, 1029
Leptinotarsa decemlineata, 476, 485, 493
feeding behavior of, 44
Leptocera sp., 281
Leptoglossus oppositus, compounds in scent fluid, 1044
Leptophlebia sp., 708
Leptophlebiidae, 708
Leptothorax longispinosus, 384
Lespesia archippovora, 1053
Lesser peach tree borer, biology, 809
Leucocytozoon, 1072
Leucophaea grandis, 577
maderae, 85, 133, 576, 1477
maderae, endocrine control, 503
puerilis, 577
Leucopis americana, 1346
obscura, distribution of predator, 1344
sp., 1213
Leucospis sp., 281
Life cycle of: Endria inimica, 74
Micromus posticus and M. subanticus, 1212
Life history of: Lespeyresia ingens, 1118
looper, 557
Polydesma umbricola, 795
Typhlodromys occidentalis, 251
Life span in Bracon hebetor, modification of, 541
Light influence on diapause of Heliothis, 1272
Limonia distans, 786
Linyphiidae, 569
Liomys adspersus, 404
irroratus, 404
irroratus alleni, 404
irroratus canus, 404
irroratus jaliscensis, 404
irroratus texensis, 404
pictus obscurus, 404
s. salvini, 404
Liorhyssus hyalinus, 70
Lipaphis erysimi, biology of, 259
Lipid synthesis in Oulema melanopsus, 1164, 1167
Liposcelis bostrychophilus, 1532
Lissonota sp., brunnea (?), 473
Little carpenterworm, 258
Living-beech borer, 258
Loboptera decipiens, 84, 577
Lobopterella dimidiatipes, 85
Lonchaea corticis, 281
Longleaf pine, seedworm infesting cones, 1116
Looper, Phigalia titea, life history of, 557
Lophoblatta arawaka, 84
sp. A, B, 84, 133
Lophoteles plumula, 875
Lorryia, the genus, 986
africana, 1002
armaghensis, 1003
atyeoi, 996
bedfordiensis, 992
benensis, 998
boycei, 1004
catenulata, 1001
chiapensis, 997
collyereae, 994
congoensis, 1004
cooremani, 1001
evansi, 992
floridensis, 991
formosa, 995
fundadorensis, 993
funki, 1000
grewia, 1003
hondurensis, 990

indonesiensis, 991
lwiroensis, 989
macquillani, 1002
mammillaris, 995
marcandrei, 989
pandana, 1004
panitae, 990
podocarpa, 994
polaris, 992
pulchra, 992
raphignathoides, 1000
reticulata, 941, 992
sigthori, 1002
summersi, 996
superba, 992
turrialbensis, 999
venustula, 1004
vivipara, 991
Low-temperature effects on Aphytis lingnanensis, 332
Lutrochus, 455
Lutzomyia dysponeta, 1143
trapidoi, 1141
Lycosidae, 568
Lygaeidae, 239, 542
Lygus elisus, 70
hesperus, 70
hesperus, responses to chemical diets, 1495
shulli, 70
Lysiopetalidae, 1061

M

Macrocentrus instabilis, 466
Macrophyllodromia sp., 84
Macrosiphum amelanchiericolens, 350
carpinicolens, 341
diervillae, 347
eupatoricolens, 356
gaurae, 351
gravicornis, 356
impatiensicolens, 350
lanceolatum, 359
onagrae, 351
pallidum, 338
pseudocoryli, 353
pseudodirhodum, 355
pseudorosae, 338
ptericolens, 342
(Sitobion) smilacicola *sikkimensis*, 753
sp., 1214
Macrosteles fascifrons, 71, 1334, 1434
Maggot digestive tracts, pH determinations of, 365
Maize weevil, rice variety effect on, 1335
Malacosoma americanum, 470
instabilis, 473
Malaoxon against face fly, 398
Male activation of large milkweed bug, 1573
Mallophaga, 261, 788, 816
Mallophaga, new species of, 146
Manduca perturbans, 1132
quinquemaculata, 1122
sexta, 545
sexta responses to light, 1466
sp., 957
Mangora gibberosa, 1219
Mansonia perturbans, 119, 1138
Mantidae, 1219
Maoriblatta novaeseelandiae, 84
Margarodes vitium, 1455
Mastrus sp., 1054, 1156
Mating of: boll weevil, 834
European pine shoot moth, 920
gypsy moth, 769
noctuid moths in blacklight trapping studies, 405
Matsucoccus bisetosus, morphology of, 1449
Mayetiola destructor, frequency, 1447
Mayflies, emergence of, 1235
Measuring system to record aphid salivation and ingestion, 180
Mechanocardiogram, device for, 1618
Megacerus alternatus, 1269
serratifemur, 1269
verticalis, 1269
Megachile rotundata, chromosome number in, 782
Megaloblatta blaberoides, 85
regina, 85
Megaloptera, 1181
Megalotomus quinquespinosus, 531, 566
Megamareta phaneropyga, 84
Megesattus, 378
araneosus, 378
costatus, 378
erosus, 378
manuelis, 378
laeviventris, 378
sternalis, 378
Megaselia, 1318
(Aphiochaeta) aequalis, biology, 1587
aletiae, 1536
aurea, 1321
(M.) biformis, 1588
enderleini, 1319
(M.) ferruginea, 1588
(M.) minuta, 1588
(M.) ruficornis, 1588
(M.) scalaris, 1588
(A.) spiracularis, 1588
spp., 1321, 1588
(A.) stuntzi, 1588
Melanism in large milkweed bug, 542
Melanolestes abdominalis, 566
Melanophthalma americana, 766
cavicollis, 766
Melanoplus differentialis, 545
differentialis, feeding habits, 173
femurrubrum, 545
sanguinipes, forage plants resistance to, 739
sanquinipes, morphometric polymorphism in, 540
Melanorhopala infuscata, 566
Melanotrichus coagulatus, 70
Melanozosteria semivitta, 84
sorror, 84
sp., 84, 133
Melittobia chalybii, 1536
sp., 1531
Melophorini, 205
Melophorus, 206
turneri, 206
Menacanthus stramineus, study of, 788
Menoponidae, 261
Merobruchus knulli, 1269
ochreolineatus, 1269
Mesochorus sp., 281, 1054, 1546
Mesostigmata, 129
Metalectra quadrisignata, 384
tantillus, 384
Metaphidippus galathea, 1219
Meta-Systox, against Tetranychus urticae, 1056
Meteorus dimidiatus, 465
indagator, 465
Methana convexa, 84
Methods: Acetate-1-C^{14}, lipid synthesis from, 1164, 1167
adaptation of insects to nornicotine, 545
alimentary canal of Empoasca, anatomy, 1604
antenna in Stratiomyidae, evolution, 871
antennal morphology of Ips confusus, 11
aphids, gall-forming, on poplar, 509
artificial culture medium, rearing Hyalophora on, 1594
attack of white pine seedlings, 1469
Methods, behavior of: alfalfa weevil, 1224
evergreen bagworm moths, 39
gypsy moth, 769
Polydesma umbricola, 796
Typhlodromus occidentalis, 251
Methods: benthos, ecology of, 1173
Methods, biological: control agent, Apanteles forbesei, 1545
notes on Dendroctonus ponderosae complex, 519
Methods: Blaberoidea, cockroach: oöthecae relating to, 84
ovarioles relating to, 133
Methods: blastoderm stage of house fly embryology, 13
breeding sites of sandflies, 1141
carrion, Hemiptera from pig, 565
central nervous system of American cockroach, carbamates and, 619
Methods, chemical: aspects of Scolytus multistriatus host selection, 1248
influence on Colorado potato beetle, 45
releasers of social behavior, 1354
Methods: chemically defined diets, Lygus hesperus responses to, 1495
Methods: chemosterilant studies on Bracon sperm, 165
chemosterilized screw-worm flies, oögenesis in, 1188
Methods, circadian: emergence rhythm of a scolytid, 587
periodicity in Crambus teterrellus, 1481
Methods: collecting black fly larvae, 960, 1073
Methods, comparison of: Matsucoccus males with other species, 1450
Oberea schaumii and Saperda inornata, 1418
Methods: consumption by arthropods of Heliothis spp., 614
controlled environments and grass hosts influence on Endria inimica, 74
corn stunt virus, Deltocephalus sonorus and, 78
culture and nutrition of Caloglyphus anomalus, 57
cycles in face fly, 691
Methods, defense: mechanisms of arthropods, 610
mechanisms of scarabaeids, 1111
reactions of Drosophila species, 159
Methods, defensive: secretions, bird response to, 781
spray of Helluomorphoides, 610
Methods, development of: Cardiochiles nigriceps, 561
red cotton bug, X-irradiation on, 1107

Methods: developmental history and reproduction of Spalangia cameroni, 1436
Methods, diapause in: boll weevil, 1125
Carpocapsa pomonella, 1612
Heliothis, 953
Methods, diet of: Choristoneura pinus, artificial, 363
grasshopper, 1539
honey bees, inositol and pollen fractions in, 515
house fly, 292, 456
Lygus hesperus responses to chemically defined, 1495
Methods, dietary: amino acids in aphid, 1202
requirements of bollworm, 120
Methods: differentiation of mosquito larval instars, 1372
digestive tracts, pH determinations of maggot, 365
dissection of endocrine glands of Heliothis zea, 966
distribution of Oligonychus subnudus, 1501
early cleavage in eggs of house fly, 1624
Methods, egg: development and survival of face fly, 828
masses, eggs, and larvae of Corydalidae, 1182
parasite of cereal leaf beetle, 1
Methods: electrophoretic studies of insect esterases, 688
emergence of Xyleborus and attack of Theobroma, 852
esterases of greater wax moth, specificities of, 806
European pine shoot moths mating in laboratory, 920
experiments in bionomics of Choristoneura roseaceana, 287
exsule stage of Pineus pinifoliae, 962
Methods, factors influencing: Anthrenus feeding, 1210
distribution of cone moth in Pinus stands, 1463
phototactic response of alfalfa weevil, 1561
Methods: fatty acids of Anopheles freeborni, 278
Methods, feeding: habits of Melanoplus differentialis, 173
nesting, and behavior of carpenter bees, 884
preferences of banded woollybear, 1221
responses of Anthrenus flavipes larvae, 1210
Methods, female: receptivity, endocrine control of, 504
sex pheromone glands of noctuid moths, 861
Methods: fertility of tórsalo, gamma radiation effects on, 23
fitness in Tetranychus urticae, 1255
flagella of eye gnats, 1548
flight activity and production of corn leaf aphid, 61
Methods, food: alternate in predator-prey interactions, 393
specificity, plant substances in, of Colorado potato beetle, 485
Methods: free amino acids in cockroach, 1027
gallery construction by carpenterworm, 73
ground phloem media for rearing Pseudopithyophthorus larvae, 815
Methods, growth: and development of California red scale, 1009
of Argyrotaenia by egg cannibalism, 1034
Methods, habitats: of American dog ticks, 679
selection of Bolitotherus cornutus, 18
Methods: habits of pine root collar weevil, 1366
hemocytes, mitotic activity of, 414, 416
hibernation of Culex p. pipiens, 774
Methods, host: preferences of mosquitoes, 116
selection by Scolytus multistriatus, 1248
Methods: hypopharynx of Aedes aegypti, study of, 1274
illumination and photography of mosquito eggs, 1040
importance to wheat production of Endria, 820
incorporation of ^{14}C-labeled acetate into triglycerides, 1037
influence of light on diapause of Heliothis, 1272
Methods, insect: adaptation to nornicotine, 545
body temperatures, 36
esterases, 686
fauna of Russian thistle, 68
leaf microhabitats, microelectrothermometry for determinations, 923
Methods: internal anatomy of black carpet beetle, 765
isolation of phagostimulative substances, 477
laboratory feeding preferences of banded woollybear, 1221
larval rearing medium and nutrition of European corn borer, 460
leaf pubescence of wheat as deterrent, 900
leafhoppers, biology of, 54, 599
light, tobacco hornworm responses to, 1466
linkage role in spider mites response, 1240
lipids in larvae of dried-fruit moth, 1035
manure for overwintering Coleoptera, 765
material source for colonization of Culicoides furens, 1486
maturation of sexual behavior of Oncopeltus, 1566
measurement of sounds of stored-product insects, 1170
micro-organisms of Diatraea saccharalis, 1427
midgut of Spodoptera littoralis, histopathology of, 1326
migrating cells, origin of, 1068
Missouri, millipedes of, 1059
molting behavior of black widow spider, 591
movement of midges in a swarm, 584
Methods, natural: cholinesterase inhibitors, 1578
control of white-pine weevil, 280
Methods, nematode: in pharyngeal glands of ant, 506
parasite of midges, 594
Methods: new parasite of Psephenus, 452
nutritional substrate requirement of Fusarium solani, 1473
occurrence in India of mustard aphid, 259
organophosphorus-resistant Tetranychus urticae, 1056
Ostrinia nubilalis biotypes, ecological responses of, 140
Methods, oviposition: by fir engraver, 227
rhythm in Crambus teterrellus, 1481
Methods, parasite of: Campoplex frustranae, 1430
potato tuberworm, 27
Methods: parasites reared from Heliothis spp., 1053
patterns of alfalfa weevil behavior, 1224
Methods, pheromones of: noctuid moths, 372
Tortricidae, 312
Methods: photoperiodic induction of diapause in boll weevil, 1125
plant feeding by Geocoris and Nabis, 232
poison apparatus, hymenopterous, 1315
polymorphism in Melanoplus sanguinipes, 540
Methods, population: dynamics of European corn borer, 1522
influence on boll weevil mating, 834
postembryonic reproductive-systems development in Empoasca, 317
Methods, predator: of green peach aphid, 580
Nantucket pine tip moth, 1219
Methods: probing behavior of pea aphid, 730, 927
production and release of sex attractant by Plodia interpunctella, 1260
pupation rhythm in Aedes taeniorhynchus, 890, 1408
races of Hessian flies, 1447
Methods, radiation: ionizing, effects on certain insects, 152
profiles, comparison in Acheta and Tenebrio, 1359
Methods, rearing: brown soft scale, 1444
lesser peach tree borer, 809
Xyletinus peltatus, 1158
Methods: reproduction in Blattaria, 572
Methods, reproductive: age in noctuid moths, 857
compatibility of Trichogramma, 956
Methods, reproductive systems of: Empoasca fabae, 316
southern corn rootworm, 1279
southwestern corn borer, 1143
Methods, resistance of: forage plants to Melanoplus, 740
house fly to apholate, 1351
Methods, revision of: Arthyssus, 630
Blissus, 239
Methods: RH of insect leaf environments, 924
seasonal changes in mite populations, 938
second matings of Musca domestica, factor preventing, 112
selection of Colorado potato beetle for plants, 494
sex determination in hard ticks, 837
sexual isolation between Aedes aegypti and A. mascarensis, 866

sites of parasites of Diptera, 1306
slug eggs, predator of, 1588
sorghums, spiders in grain, 568
sperm use in boll weevil matings, 1148
spiders in banana plants, 878
stabilization lagoons, physicochemical stress factors in, 904
sublethal doses of chlordane in Periplaneta, 910
substance elicits searching response, 8
subterranean aphid, polymorphism in, 820
sucrose and sodium chloride, response of tabanids to, 223
synchronous emergence of mayflies, 1235
Methods, taxonomic: study of Psorophora, 385
use of Ephemeroptera eggs, 697
Methods, techniques: for rearing mimosa webworm, 919
on chromosomes of Nilobezzia and Bezzia, 1524
Methods, temperature: and humidity effect on egg hatch, 1606
and light conditions affecting behavior of pine root collar weevil, 1490
effect on Hippelates collusor, 368
of insect bodies, 36
winter, screw-worm survival in, 65
Methods: terpenes in glands of Lasius umbratus, 1355
tissue culture, histology of Bombyx mori ovaries in, 1064
transformation of Aphytis linguanensis females into virgins, 333
trap for Odonata, 1506
trapping studies of noctuid moths, 405
Tribolium, developmental stages of, 290
unisexual strain of salt-marsh caterpillar, 950
variation and heritability of responsiveness of house flies to pheromones, 1215
Vietnam, ticks of, 722
virgin egg production of Oncopeltus fasciatus, 1573
virus transmission, aphid stage and, 907
vision, color, of stable fly, 789
Wichita Mountains, ecology of mosquitoes in, 1129
wood-boring insects, frass of, 256
Methyl paraoxon against face fly, 398
Metopia, 425
astuta, 425
macrocera, 425
Metopoloba pruinosa, 71
Meyerella, 969
bifurcatus, 969
Microchrysa polita, 871
Microcylloepus, 455
Microdipodops polionotus, 405
Microelectrothermometry for determinations of insect leaf microhabitats, 923
Microflora of sugarcane borer, 1427
Microlestes nigrinus, 766
Micromus posticus and M. subanticus, life cycle of, 1212
spp., 1213
Microplitis croceipes, 1053
Microsania imperfecta, ecology of, 1200
Microsporidian diseases of sod webworms, 544
Microthermoelectric thermometer for insect body temperatures, 36
Microtys flavus, 1443
Midges, Hydromermis *conopophaga* parasitizing, 593
movement in a swarm, 584
Millipedes, ecology of, 1059
Miltogramminae, 422
Mimosa webworm, correct name for, 228
rearing techniques, 919
Mimosestes inornatus, 1269
protractus, 1270
Miscellaneous publications of ESA, 1349
Misumenops asperatus, 1219
Mite, host preference of, 1475
populations in Japanese granaries, 938
Mitotic activity of hemocytes of Oncopeltus fasciatus, 413, 416
Moluchia castanea, 84
Monedula insularis, 1294
signata, 1294
Monodontomerus aereus, 281
minor, 1537
Monterey pine, abundance of Oligonychus subnudus on, 1500
Morphological differentiation of mosquito larvae instars, 1372
Morphology of: Dendroctonus ponderosae complex, 517
Ephemeroptera eggs, 696
Ips confusus, 10
Matsucoccus bisetosus, 1449
sex pheromone glands of noctuid moths, 861
southern corn rootworm, 1279
southwestern corn borer, 1143
Symphyta, 1389
Morphometric polymorphism in Melanoplus sanguinipes, 540
Mosquitoes: acetone treatment for, 779
differentiation of larval instars, 1372
ecology of, 1129
eggs, illumination and photography of, 1039
flight mill system for, 1507
host preferences of, 116
Moth mites from Hawaii, 129
Mounting insects in Canada balsam, 783
Multiple matings in boll weevils, 1148
Musca, 17
autumnalis, 548, 827
autumnalis, acetylcholinesterase from, 397
autumnalis, gonadotrophic cycles, 690
domestica, 36, 292, 365, 398, 456, 545, 828, 1215
domestica, apholate resistant, 1351
domestica, cleavage in eggs, 1624
domestica, embryology of, 13
domestica, factor preventing second mating, 112
domestica, parasites from, 1306
domestica, response to sex pheromone, 1215
domestica calleva, 1307
domestica curviforceps, 1307
fasciata, 1313
Muscidae, 13
Muscidifurax raptor, 1306
Muscina sp., 1313
parasites from, 1306
Mustard aphid, biology, 259
Mylabris (Bruchus) peruanus, 1270
(B.) prolixus, 1269
Mymaridae, 1
Myodocha serripes, 566
Myrmecocystus, 211
lugubris, 213
melliger, 211
mexicanus, 213
mimicus, 213
mojave, 213
semirufus, 213
Myrmecorhynchini, 208
Myrmecorhynchus, 208
emeryi, 208
Myrmedoniini, revision, 971
Myrmelachistini, 209
Myrmica emeryana, 384
Myxosargus knowltoni, 874
Myzus persicae, 579, 1214
amino acids and wing determination in, 1201

N

Nabis alternatus, 614
americoferus, plant feeding by, 232
Nahublattella nahua, 84
Nantucket pine tip moth, Campoplex frustranae parasite of, 1430
predators, 1218
responses of parasites, 1380
Narceus americanus, 1062
Nasonia, 1437
vitripennis, 1314
Nauphoeta cinerea, 85, 133, 577
Neivamyrmex alfaroi, 1318
nigrescens, 1318
opacithorax, 1318
spp., 1319
sumichrasti, 1322
Nematus ribesii, 1390
Nemorilla sp. (? maculosa), 474
Nemotelus sp., 873
Neoblattella detersa, 84, 133, 577
dryas, 84
fratercula, 84
Neocoelidia orovila, 71
pallida, 71
Neocorylobium, 341
carpinicolens, 341
Neocypholaelaps *lindquisti*, 130
Neodiprion tsugae, parasites of, 1155
Neohermes concolor, 1186
Neokolla hieroglyphica, 1344
severini, 71
Neopachygaster reniformis, 875
Neosteles neglectus, 71
Neostylopyga rhombifolia, 84, 133, 576
Nephochaetopteryx, 435
aurescens, 436
distincta, 436
hyalina, 436
marianae, 436
maxima, 437
rettenmeyeri, 435
sp., 423
spinosa, 437
subcaesiella, 313
Nesomylacris relica, 85
Nesostes, 378
robustus, 378
Nesticidae, 569
Netelia sp., 1054

Neuroptera, 1212
Night-flying moths, waveguide on antennae, 934
Nigritomyia consobrina, 872
Nigronia fasciatus, 1185
serricornis, 1182
Plecopteracoluthus phoresy by on larvae, 1622
Nilobezzia, chromosomes of, 1524
brevicornis, 1524
Nitrogen, irradiation in, and life span in Bracon hebetor, 541
Noctuid moths, mating in blacklight trapping studies, 405
sex pheromones of, 372, 857, 861
Noctuidae, 8, 120, 372
Noctuiseius, 411
treati, 411
Nomamyrmex esenbecki, 1318
Nornicotine, insect adaptation to, 545
Norvellina seminuda, 1434
Nosema sp., 544
Nothomyia colopus, 875
Nothrus sp., 941
Notice, 1968 annual meeting, 961
Notochaeta, 437
bisetosa, 437
bufonivora, 439
frontalis, 439
fuscianalis, 439
monochaeta, 439
palpalis, 441
panamensis, 441
vexator, 442
Notoncus ectatommoides, 206
enormis, 206
foreli, 208
Notonecta undulata, 786
unifasciata, 786
Nutrition: effects on face fly, 827
of European corn borer, 459
Nyctibora laevigata, 85
sp., 85
sp. nr. glabra, 85
Nysius raphanus, 70
tenellus, 70

O

Oak, frass of insects in, 255
Oberea schaumii, comparison with Saperda inornata, 1418
Obituaries: Erich Martin Hering, 555
Ralph Langley Parker, 1631
Donald Timmerman Ries, 1630
Ochleroptera bipunctata, 1344
Odonata, 784, 1033
trap for, 1506
Odontomyia virgo, 874
Odontotermes obesus, sugar-dye movement in, 230
Oecanthus argentinus, 70
Oecophylla, 215
leakeyi, 215
longinoda, 215
smaragdina, 215
Old-field habitats, use by American dog tick, 679
Olfactometer, economical and disposable, 1618
Oligonychus milleri, 1500
punicae, predator-prey interactions with Amblyseius hibisci, 393
subnudus, seasonal abundance of, 1500
Oncideres cingulata, 559
Oncocephalus geniculatus, 566
Oncopeltus fasciatus, 151, 1618
egg production and male activation of, 1573
melanism in, 542
mitotic activity of hemocytes of, 413, 416
sexual behavior of, 1566
Onychomys leucogaster, 405
Onychostylus notulatus, 84, 133
Oögenesis in: chemosterilized screwworm flies, 1188
Hippelates collusor, 368
house fly, 1351
Oöthecae of the Blattaria, 83
Operophtera brumata, 1381
Ophyra sp., 1313
parasites from, 1306
Opidnus t. tsugae, 1156
Opisthopsis, 215
haddoni, 215
rufoniger, 216
Opius, pygidial glands in, 233
concolor, 233
ferrugineus, 233
fletcheri, 233
incisi, 233
juglandis, 233
kraussi, 233
longicaudatus, 233
oophilus, 233
sp. nr. lectoides, 233
tryoni, 233
Opsidia metopioides, 425
Opsius stactogallus, 71, 1344
Organics of honey bee stings, 5
Organophosphorus resistance in Tetranychus urticae, 1255
Oribatula sp., 941
Origin of migrating cells, 1067
Oriola, 968
farbae, 969
Orius insidiosus, 614
Ornithodoros (Alectorobius) capensis, 536
(Persicargas) gurneyi, 536
(P.) macmillani, 536
Orthezia, 1455
Ortholomus arphnoides, 70
Orthopodomyia alba, 1136
alba, differentiation of larval instars, 1372
signifera, 1132
differentiation of larval instars, 1372
Orthoptera, 173, 540, 739
Oryzaephilus surinamensis, 1172
Oscinella sp., 281
Osmia cordata, 1531
lignaria, 1531
Ostrinia nubilalis, and host variety, 1521
ecological responses of, 140
nutrition of, 459
Othoperus princeps, 766
Otiarus sp., 71
Oulema melanopus, 1
lipid synthesis in, 1164, 1167
wheat pubescence as deterrent, 900
Ovarian growth in house fly, 1351
Ovarioles of Blattaria, 132
Overcup oak, gallery construction by carpenterworm in, 72
Oviposition (see Methods)
Oxybelus emarginatum, families prey of, 1029
Oxyopes salticus, 614
Oxyopidae, 569
Oxysarcodexia, 443
amorosa, 443
cyaniforceps, 443
jamesi, 443
mitifica, 443
occulta, 444
sarcinata, 444
vesica, 444
Ozophora picturata, 566

P

Pachybruchus verticalis, 1269
Pachycrepoideus vindemiae, 1314
Pachymerus olearius, 1270
Pachysomoides fulvescens, 1531
fulvus, 1530
spp., 1536
stupidus, 1531
Paleacrita vernata, 557
Panava, 444
inflata, 444
Panchlora nivea, 85, 133
Pandemis limitata, 313
Panesthia sp., 85
Panonychus citri, 1214
Paradejeania rutilioides nigrescens?, 1350
Paragnetina immarginata, 1623
media, 1623
Parajulidae, 1061
Paralauterbormella subcincta, 786
Paraleptophlebia adoptiva, 708
debilis, 708
mollis, 708
Paralobesia viteana, 313
Paralorryia, 987
the genus, 1097
Paralorryia argentinensis, 1099
arthurbakeri, 987, 1101
berryi, 1100
carya, 1105
chapultepecensis, 1105
concinna, 1099
cumbrensis, 1098
doddsi, 987, 1102
eharai, 1104
ferula, 987, 1103
gonzalezi, 1102
italica, 1098
leptonychotes, 987, 1100
magdalenae, 1101
mali, 987, 1103
mansoni, 1106
mexicana, 1100
peruviensis, 1099
sapodilla, 1098
stegmaieri, 1104
striata, 1104
woolleyi, 1103
zaheri, 1101
Paranthrene palmii, 255
Paraoxon against face fly, 398
Paraphlepsius spp., 1435
Paraphrissopoda, 444
(Euboettcheria) anguilla, 444
chirotheca, 445
chrysostoma, 445
(E.) collusor, 445
gulo, 446
uncinata, 446
urceola, 446
Paraprays, 228
anisocentra, 228

Parasites of: Diptera, 1306
Polistes nests, 1528
Parasitism of: Dendroctonus, 1384
Micromus posticus and M. subanticus, 1212
Parasitus spp., 941
Paratemnopteryx australis, 84
Parathion, effect of Spodoptera littoralis, 1327
Paratrechina, 211
(Nylanderia) bruesi, 211
(N.) parvula, 211
Paratrioza maculipennis, 71
Parcoblatta bolliana, 85
caudelli, 85
fulvescens, 85
pensylvanica, 85, 133, 1530
sp., 1533
uhleriana, 85
Parthenicus sp., 70
Patch, review of her aphid species, 338
Pattonella occipitalis, 446
Pea aphid, probing behavior, 730, 927
enation mosaic virus transmission and aphid stage, 906
Peckia retrocita, 446
Pectinophora gossypiella, 124
Pediobius sp., 281
tarsalis, 474
Peloribates sp., 941
Pemphigus bursarius, gall-forming aphids in, 509
bursarius, polymorphism in, 819
nortoni, gall-forming aphids in, 509
populitransversus, 509
Perforations in cockroach cuticle, 1346
Pericyclocera javicola, 1588
Perilampus chrysopae, 1537
tristis, 474
Periplaneta americana, 36, 84, 133, 618, 687, 1346, 1477, 1618
americana, chlordane effects on, 910
americana, malpighian tubule muscle of, 226
australasiae, 84, 133
brunnea, 84, 133
fuliginosa, 84, 133
japonica, 84
Perizoma sp. prob. custodiata, 71
Perodipus richardsoni, 405
sp., 405
Perognathus californicus, 405
formosus, 405
h. hispidus, 405
h. zacatecae, 405
merriami, 404
parvus olivaceus, 405
Persicargas, subgenus, 535, 744
from wild birds, 1113
Pessoamyia, 446
emblemasoma, 446
Peucetia viridans, 1219
pH determinations of maggot digestive tracts, 365
Phaenicia (Lucilia) cuprina, 1112
Phaenolauthia, n. sp. nr. arizonensis, 1530
Phaeogenes, s. str. of North America, 625
cacoeciae, 626
gilvilabris, 627
hebrus, 625
nigridens, 628
opthalmicus *americanus*, 627
phycidis, 471
sp., 1465
Phagostimulative substances from host of Colorado potato beetle, 476
Phanerotoma fasciata, 1121
tibialis, 466
toreutae, 1465
Phasganophora capitata, 1623
Pheidole sp., 384, 1322
Phenacoccus solani, 71
Phenolauthia sp., 1536
Phigalia titea, life history of, 557
Philonthus sp., 766
Philopteridae, 146
Phlebotomine sandflies, breeding sites of, 1141
Pholcus phalangiodes, 593
Phora aequalis, 1588
sp., 1588
Phoresy by Plecopteracoluthus downesi, 1622
Phorid flies, and army ants, ectosymbiosis between, 1317
Phormia regina, 365, 545
sp., 1313
Phortioeca phoraspoides, 85, 133, 576
Phospholipid fractionation, glass sheets for, 1026
Photoperiod and diapause in Hypera postica, 531
Phototactic response of alfalfa weevil, 1561
Phthorimaea operculella, 26
Phygadeuon spp., 1307, 1313
Phyllobaenus lecontei, 1219
singularis, 1219
Phyllocolpa, 1389
Phyllodromica subaptera, 85
Phyllotreta sp., 71
Phytodietus sp. (burgessi ?), 468
Phytoseiid mites from Hawaii, 1459
Phytoseiulus macropilis, 1462
Phytoseius, in Egypt and the Sudan, 1083
hawaiiensis, 1460
perforatus, 1083
solanus, 1085
woodburyi, 1461
Piesma cinereum, 70
Pig carrion, Hemiptera from, 565
Pimiplopterus sp., 560
Pine: engraver in Appalachian Mountains, 235
root collar weevil, diel periodicity, 1490
root collar weevil movements, 1365
tip moth collapse, 786
Pineus pinifoliae attacking white pine shoots, 962
Pinus banksiana, cone moth in stands, 1462
Pipuncuidae, 805
Pisauridae, 569
Pissodes strobi, 280
attack white pine seedlings, 1468
Pitedia ligata, 70
sayi, 70
Plagiolepidini, 208
Plagiolepis, 208
crozi, 209
Plagiomima ?spinosula, 1054
Plant feeding by Geocoris pallens, 232
Platyna hastata, 875
Platynota stultana, 71
Platynothrus sp., 941
Platystethus americanus, 766
Platyzosteria aterrima, 84
castanea, 84
limbata, 84
melanaria, 84
novaeseelandiae, 84
Plecopteracoluthus downesi, phoresy by, 1622
Plectoptera sp., 84
Plethysmochaeta sp., 1588
Plodia interpunctella, 1172, 1530
sex attractant of, 1260
Plum curculio, ionizing radiation effects on, 151
Pluto albifacies, 1344
Pogonomyrmex badius, 1219
occidentalis, 610
Poisoning and pupation of queen butterfly, 1343
Polistes annularis, 1529
apachus, 1531
bellicosus, 1531
canadensis, 1531
carnifax, 1531
critinus, 1531
cubensis, 1531
e. exlamans, 1529
fuscatus, 1531
fuscatus pallipes, 1531
fuscatus variatus, 1529
instabilis, 1531
major, 1531
metricus, 1529
nests, parasites of, 1528
pacificus, 1532
pallipes, 1531
rubiginosus, 1529
Polistophaga arvalis, 1530
fulva, 1530
fulvipes ?, 1530
stupida, 1531
Pollen fractions, honey bee brood rearing in response to, 514
Polydesma umbricola, life history, 795
Polydesmidae, 1062
Polyergus, 214
lucidus, 214
rufescens, 214
Polymitarcidae, 719
Polymorphism in Pemphigus bursarius, 819
Polyphaga aegyptiaca, 84, 133
indica, 84
plancyi, 84
saussurei, 84
Polyporus adustus, 384
gilvus, 384
tsugae, 18
Polyrhachis (Chariomyrma) hookeri, 220
(Hagiomyrma) schencki, 221
(Campomyrma) sp., 221
(Hedomyrma) sp., 221
Ponera coarctata pennsylvanica, 384
Pontania, 1389
pacifica, 1399
proxima, 1399
Poplar, gall-forming aphids in, 509
Porthetria dispar, 768
Potamanthidae, 700
Potamanthus, 716
myops, 700
neglectus, 700
Potato tuberworm, Campoplex haywardi parasite of, 26
Praon pequodorum, 1628
Predator-prey interactions between Amblyseius and Oligonychus, 393
Prenolepidini, 211
Prescottia lobata, 1344
Prionyxtus macmurtrei, 255
robiniae, 255
gallery construction by, 72

Pristomerus spinator, 1054
Procecidochares stonei, biology of, 553
Procladius denticulatus, 1179
freemani, 1179
riparius, 1179
Proctolaelaps hypudaei, 941
lobatus, 132
Prodenia eridania, 545
ornithogalli, 71, 372, 405, 687, 857, 861
Prolasius, 206
sp., 206
Pronauphoeta viridula, 577
Pronematulus sp., 941
Pronematus, the genus, 1091
anconai, 1094
bachewingi, 1096
biminiensis, 1095
bonatii, 1094
brachytarsus, 1091
curtipilus, 1091
curtitarsus, 1095
davisi, 1096
elongatus, 1093
fleschneri, 1092
mcgregori, 1095
neoelongatus, 1094
rykei, 1093
sextoni, 1092
tenuisetosus, 1096
ubiquitus, 1093
vandykei, 1091
Propyl paraoxon against face fly, 398
Prosimulium fuscum, 1072
Protein effect on house fly reproduction, 456
Proteus mirabilis, 365
Protoparce quinquemaculata, 1122
Psallus pictipes, 70
Psectrocladius sp., 786
Psephenidae, 450, 452
Psephenivorus, 450
mexicanus, 451
Psephenus, parasitized by *Psephenivorus mexicanus*, 450, 452
herricki, 456
palpalis, 455
texanus, 455
Pseudaletia unipuncta, 405, 545, 1546
Pseudaspidoproctus (?) fulleri, 1455
Pseudeuchila bochei, defense reactions of Drosophila to, 158
Pseudochironomus sp., 786
Pseudocoila sp., 281
Pseudoderopeltis unicolor, 84, 133
Pseudomops septentrionalis, 85
Pseudopityophthorus minutissimus, rearing larvae of, 814
pruinosus, rearing larvae of, 814
spp., serial sections of, 1340
Pseudoplusia includens, 857, 861
ni, 372
Pseudopolydesmus minor, 1062
pinetorum, 1063
serratus, 1063
Psilus sp., 281
Psittaciformes, 261
Psittacobrosus, of neotropical Psittaciformes, 261
amazonicus, 267
ambiguus, 264
anduzei, 270
aratingae, 274
brotogerisi, 271
burmeisteri, 262
carrikeri, 269
chloropterae, 269
farinosae, 269
forpi, 271
genitalis, 265
hyacinthini, 264
kelloggi, 264
mitratae, 265
molinae, 273
patagoni, 273
pyrrhurae, 273
rubrogenysi, 265
Psorophora, taxonomic study of, 385
(Janthinosoma) albipes, 386
(P.) ciliata, 386, 1130
(P.) cilipes, 386
(Grabhamia) cingulata, 386
(G.) confinnis, 386, 1132
(J.) cyanescens, 386, 1132
(G.) discolor, 386, 1132
(J.) ferox, 386, 1132
(P.) howardii, 386, 1132
(G.) insularia, 386
(P.) lineata, 386
(J.) lutzii, 386
(G.) pygmaea, 386
(G.) signipennis, 386, 1130
(J.) varipes, 386
Psychidae, 38
Psylla pyricola, 579
Ptecticus trivittatus, 871
Pteromalus puparum, 1531
Pteronidea, 1390
Ptilocera bergi, 875
Ptinus clavipes, 1532
(P.) *extendus*, 1197
gandolphei, 1199
verticalis, 1199
verticalis complex, 1197
Pulicimyia triangularis, 1323
Puliciphora, 1319
borinquenensis, 1318, 1588
fenestrata, 1321
frivola, 1321
imbecilla, 1321
nigriventris, 1588
nitida, 1321
rata, 1321
spp., 1321
venata, 1588
wymani, 1588
Pycnoscelus indicus, 85, 133
surinamensis, 85, 133
teratological specimen of, 777
Pyemotes sp., 941, 1531
Pygidial glands in Opius, 233

R

Rachiplusia ou, 372, 857, 861
Radiation (see Methods)
Raphignathus sp., 941
Raphitydeus (subgenus), 987
Ravinia, 446
sp., 424
Raviniopsis spinosa, 446
Rearing: giant silkworm moth, 1594
horn flies, 1045
Pseudopityophthorus larvae, 814
Red: cotton bug, X-irradiation effect on, 1107
oak borer, 257
pine plantations, pine root collar weevil movements in, 1365
Redescription of Hyalomma (H). erythraeum, 1228
Regeneration of damselfly appendages, 784
Reproduction, reproductive (see Methods)
Response of Tetranychus urticae to selection, 1239
Reticulitermes sp., 384
virginicus, 384
Rettenmeyerina, 447
serrata, 447
RH humidity and Tribolium castaneum, 290
Rhagoletis indifferens, 234
Rhantus sp., 786
Rhinacloa forticornis, 70
Rhipicephalus sanguineus, 727
Rhithrogena, 704
impersonata, 700
sanguinea, 700
Rhizoglyphus echinopus, 1031
Rhopalicus pulchripennis, 281
Rhopalosiphum maidis, flight activity of, 60
Rhorus sp., 1156
Rhyacionia buoliana, 474
buoliana, mating 920
frustrana, 786, 1430
frustrana, predators of, 1218
frustrana, responses of parasites, 1380
frustrana bushnelli, 1430
rigidana, 786, 1430
Rhyacophila, and its larvae, 655
acropedes, 658
angelita, 660
bifila, 660
coloradensis, 661
hyalinata, 663
norcuta, 664
oreia, 664
oreta, 664
pellisa, 666
rotundata, 666
tucula, 666
vaccua, 668
vagrita, 668
vao, 670
vepulsa, 670
verrula, 671
vobara, 672
vocala, 672
vofixa, 672
Rhynchites bicolor, 468
Rhythm of Xyleborus ferrugineus, 587
Rhyzopertha dominica, 1172
Riatia orientis, 84
Rice, effect of variety on rice and maize weevils, 1335
Rice weevil, rice variety effect on, 1335
Ruelene against face fly, 398
Russian thistle, insect fauna of, 67
Rygchium formaninatum, 1531
h. hidalgo, 1531

S

Salmonella enteritidis, 365
typhimurium, 365
Salsola kali var. tenuifolia, insect fauna of, 67
Salticidae, 569
Salt-marsh caterpillar, unisexual strain, 949
Samia cecropia, 934

Sandflies, arboreal breeding sites of, 1141
Sanninoidea exitiosa, 313
Saperda inornata, comparison with Oberea schaumii, 1418
Sarcodexia sternodontis, 448
Sarcophaga, 448
accurata, 448
bullata, 365
cassidifera, 448
declinata, 448
placida, 448
polistensis, 1530
rudicompages, 448
sp. nr. bullata, 1535
Sarcophagidae: of Barro Colorado Island, 421
sp., 1313
Sarcophaginae, 422
Sargus bipunctatus, 871
viridis, 871
Scabina sp., possibly antipoda, 84
Scambus hispae, 468
(S.) nucum, 1156
Scape and pedicel dome sensors, 934
Scaphytopius irroratus, 71
sp., 1344
Scarabaeids, defense mechanisms of, 1111
Scatopse fuscipes, 281
sp., 281
Sceliphron caementarium, 231
Scent fluid of Leptoglossus oppositus, 1044
Scheloribates laereigatus, 941
sp., 941
Schwiebia spp., 1031
Scolytidae, 10, 227, 235
Scolytus laricis, sex characters of, 1626
multistriatus, host selection by, 1248
ventralis, estimation of oviposition by, 227
Scotogramma trifolia, 71
Screw-worm: flies, oögenesis in, 1188
pupae and winter temperatures, 65
Scutigerella immaculata, hemocytes of, 1028
Scymnus hortensis, 614
loweii, 614
Scytonotus granulatus austrinus, 1063
Seasonal abundance of Oligonychus subnudus, 1500
Secondary plant substances in food of Colorado potato beetle, 485
Seedworm infesting longleaf pine cones, 1116
Sehirus c. cinctus, 566
Sennius auctus, 1270
depressus, 1270
discolor, 1270
discopterus, 1270
peruanus, 1270
simulans, 1270
Senotainia rubriventris, 1294
Serial sections of Pseudopityophthorus spp., 1340
Sericophanes heidemanni, 281
Sex: attractant of Indian-meal moth, 1260
characters of Scolytus laricis, 1626
pheromones: of noctuid moths, 372, 857, 861
response of house flies to, 1215
specificity tests in Tortricidae, 312
Sexual behavior of Oncopeltus fasciatus, 1566
Sexuparae, development in Pemphigus, 819
Shallow-water habitat, sampling of aquatic insects in, 785
Shawella couloniana, 85, 133
Shelf fungi, inhabitants, 383
Shenahweum, 185
minutum, 187
Signophora polistomyiella, 1531
Simuliidae, prey of Oxybelus emarginatum, 1029
Simulium aureum, 1072
decorum, 960, 1072
emarginatum, 1072
rugglesi, 1072
tuberosum, 1072
venustum, 960, 1073
verecundum, 1073
vittatum, 960, 1073
Sinea diadema, 566, 1219
Sinomegoura *pyri*, 753
Siphlonuridae, 702
Siphlonurus, 702
alternatus, 700
mirus, 700
Siphloplecton basale, 708
Sitona cylindricollis, 766
Sitophilus granarius, 1170
oryza, 1171
oryzae, rice variety effect on, 1335
zeamais, rice variety effect on, 1335
Sitotroga cerealella, 1032, 1171, 1324
Slide mount preparation of khapra beetle, 1623
?Smicrus ?filicornis, 766
Smithistruma pergandei, 384
Smoke fly, ecology of, 1200
Social behavior, chemical releasers of, 1354
Sod webworm, microsporidian diseases of, 544
Sounds of stored-product insects, 1170
South African Cape vulture, Argasid parasite of, 744
Southern corn rootworm, morphology and histology of, 1279
Southwestern corn borer, morphology of, 1143
Spalangia cameroni, 1306
cameroni, history and reproduction of, 1436
endius, 1306
longepetiolata, 1313
nigra, 1307
nigripes, 1307
nigroaenea, 1306
simplex, 1313
Spanagonicus albofasciatus, 70
Specificities of esterases, 806
Specularius erythrinae, 1270
Spermatids, centrioles of insects, 1037
Spermophagus eustrophoides, 1268
piurae, 1268
(Zabrotes) semicinctus, 1271
vitis, 1268
Sphaeriontis, 378
ciliatus, 378
muricatus, 378
muricatus acomanus, 378
muricatus dilatatus, 378
muricatus fulvescens, 378
muricatus latissimus, 378
puberulus, 378
Sphaerocera, revision, 296
curvipes, 300
monilis, 305
richardsi, 303
tuberculosa, 302
Sphecophaga praedator, 1530
vesparum burra, 1530
Sphegigaster sp., 1313
Spiders: and banana plants, 878
in grain sorghums, 567
Spilochalcis albifrons, 473
delumbis, 472
igneoides, 281
Spinibdella bifurcata, 941
cronini, 941
Spiniphora bergenstammi, 1588
excisa, 1588
helicivora, 1588
maculata, 1588
Spissistilus festinus, 71
Spodoptera exigua, 71, 372, 857, 861, 956
frugiperda, 1068
littoralis, histopathology of midgut, 1326
Spotted alfalfa aphid, biological observations on, 1627
Stable fly, color vision of, 789
Stator beali, 1270
Stegobium paniceum, 1170
Stegomyia, reproductive isolation in, 865
Steingelia, 1456
gorodetskia, 1455
Steniolia, 1289
Stenodynerus (Parancistrocerus) f. fulvipes, 1531
(P.) f. mystecus, 1531
Stenolophus conjunctus, 766
Stenonema, 704
canadense, 706
femoratum, 706
frontale, 708
fuscum, 708
heterotarsale, 700
interpunctatum, 700
lepton, 706
minnetonka, 700
nepotellum, 706
rubromaculatum, 706
tripunctatum, 708
vicarium, 708
Stenophorus parvulus, 766
Stichotactis, 228
calamitosa, 228
Stictia signata, 1294
Stictiella, 1289
Stigmacros, 209
acutus, 209
barretti, 210
(Campostigmacros) sp., 210
Stilpnus sp., 1313
Stirellus bicolor, 1434
obtutus, 1434
Stobaera sp., 71
Stomoxys calcitrans, 828
color vision of, 789
parasites from, 1306
Stored-product insects, sounds of, 1170
Stragania robusta, 71
Stratiomyidae, evolution of antenna in, 870
Stratiomys sp., 873
Streptococcus faecalis, 365
Stylops sp., 1585
Sugar beets, green peach aphid on, 579
Sugarcane borer, microflora of, 1427
Suidasia nesbitti, 941
Supella longipalpa, 84, 133
mirabilis, 84
supellectilium, 84
Symbionts of Polistes nests, 1528

Symploce bilabiata, 85
hospes, 85, 133
jamaicana, 85
ruficollis, 85
Synanthedon pictipes, biology, 809
Synanthropic flies, Spalangia cameroni parasite of, 1436
Syrphidae sp., 1313
Systena sp. prob. blanda, 71

T

Tabanidae, four new species, 380
Tabanids, response to sucrose, sodium chloride, 222
Tabanus (Chelotabanus) *attenuatus*, 381
lineola, 223
monilus, 382
Tachineaphagus giraulti, 1307
zealandicus, 1307
Taeniodictys servicella, 1530
Tanytarsus dendyi, 1179
n. sp. A, B, 1179
xanthus, 1179
Tapinoma sessile, 384
Tarsonemus spp., 941
Taste response of bird, 781
Telenomus alsophilae, 560
sp., 1032
Temelucha sp., 472, 1054
Temnelytra truncata, 84
Temperature (see Methods)
Tenebrio molitor, 550, 1171
molitor, radiation profiles comparison, 1359
obscurus, 1172
Tenebrionidae, 18, 290
Tenebroides mauritanicus, 1171
Teratological specimen of Pycnoscelus surinamensis, 777
Termitidae, 230
Tetanoleta mynesalis, 1546
Tetragnathidae, 569
Tetranychus mcdanieli, 251
sp., 941
telarius, 1444
urticae, coadaptive process in, 1055
evolution of OP resistance, 1255
response to selection, 1239
Tetrastichus sp., 1531
Tettigoniidae, 1219
Texananus spatulatus, 71
Thalloptera schwarzmaieri, 1318
sp., 1322
Thecabius populimonilis, 509
Thelohania sp., 544
Theobroma cacao, attack of, 852
Therea petiveriana, 133
Theridiidae, 569
Therioaphis trifolii, 1627
Thermonectus basilaris, 786
Thomisidae, 568
Thraulodes speciosus, 708
Thyanta p. pallidovirens, 70
pallidovirens spinosa, 70
punctiventrus, 70
Thyridopteryx ephemeraeformis, biology of, 38
Ticks, cytogenetics of, 787, 837
of Vietnam, 722
Time-lapse studies, aid to, 775
Timing of development of pheromone-responsiveness in noctuid moths, 857
Tinda javana, 875
Tinea carnariella, 1535
fusipunctella, 1530
latebricola, 1530
sp., 384
TIPA against face fly, 398
Tobacco hornworm, responses to light, 1466
Togoperla media, 1623
Tórsalo, gamma radiation effects on, 23
Tortopus, 719
sp., 719, 720
Tortricidae, sex pheromone specificity tests in, 312
Toxoptera aurantii, 1214
Toxorhynchites rutilus septentrionalis, 1132
Tracheal system in Menacanthus stramineus, 788
Traps, trapping (see Methods)
Tribolium anaphe, 550
castaneum, 1172
castaneum, mutations and sexes in, 550
castaneum, relative humidity effect on, 290
confusum, 550, 1172, 1324, 1580
destructor, 550
madens, 550
Trichogramma, reproductive compatibility, 956
australicum, 1122
embryophagum, 1122
euproctidis, 1123
evanescens, 959, 1122
fasciatum, 1122
japonicum, 1122
minutum, 1122, 1465
pretiosum, 959
pretiosum, validity of, 1122
retorridum, 1123
semblidis, 1122
semifumatum, 614, 959, 1122
semifumatum, uniparental race of, 1032
sp., 1121
Trichopetalidae, 1063
Trichopetalum sp., 1063
Trichophaga tapetzella, 1535
Trichoplusia ni, 71, 313, 372, 405, 857, 861, 956, 1032, 1068, 1545
Trichopria sp., 455
Trichoptera, 655
Trichotaphe levisella, 465
Tricorythidae, 700
Tricorythodes, 714
atratus, 700
explicatus, 700
fallax, 700
stygiatus, 700
Triophthydeus sp., 941
Trioxys utilis, 1628
Trogoderma glabrum, 1530, 1623
glabrum infests comb honey, 1621
granarium, slide mount preparation of, 1623
grassmani, 1623
inclusum, 1530, 1623
ornatum, 1623
parabile, 1172, 1623
simplex, 1623
sp., 1532
sternale, 1623
Tropisternus lateralis humeralis, 786
Trypoxylon (Trypargilum) clavatum, 1537
Two-spotted spider mite, coadaptive process in, 1055
evolution of OP resistance, 1255
Tydeidae, new genera, 968
Tydeus spp., 941
Type-specimens of Bruchidae in U. S. museums, 1266
Typhlodromus *haramotoi*, 1370
jackmickleyi, 1371
mcgregori, 251
mites from Hawaii, 1369
neobakeri, 1369
occidentalis, life history of, 251
pini, 1372
rhenanoides, 1372
sp., 941
Typhloseiopsis arboreus, 1504
conspicuus, 1504
sp., 1501
Tyroglyphid mites, collecting device for, 1030
dye marking of, 1031
Tyrophagus putrescentiae, 941
sp., 941, 1031

U

Uloboridae, 569
Uniparental race of Trichogramma, 1032
Uranotaenia sapphirina, 1132
U. S. museums, Bruchidae type-specimens in, 1266

V

Vanessa cardui, 71, 1032
carye, 1032
Varcophaga, 448
varenna, 448
Vespula, 1532
maculata, 1535
maculifrons, winter activities of, 542
Villa spp., 1294
Vitula edmandsae serratilineella lipids in larvae, 1035
triglycerides of larvae, 1036
Volucella sp., 1294
Voria aurifrons, 1054

W

Wandolleckia cooki, 1588
Wheat, pubescence as deterrent, 900
White pine: seedlings attacked by white-pine weevil, 1468
shoots, histology, 962
White-pine weevil: attack white pine seedlings, 1468
biology of, 280
Wing determination in aphid, 1201
Winter activities of Vespula maculifrons, 542
Winthemia rufopicta, 1054

X

X-irradiation effect on red cotton bug, 1107
Xanionotum bruchi, 1323
  hystrix, 1318
  wasmanni, 1323
Xanthippus corallipes, 1541
Xarcophaga, 449
  xon, 449
Xerophloea peltata, 71
Xestoblatta festae, 85
  immaculata, 85, 133
  natalensis, 84
Xyleborus ferrugineus, relationship with Fusarium solani, 1473
  ferrugineus, rhythm of, 587
  posticus, 852
  spp. emergence, 852
Xyletinus peltatus, development and longevity of, 1158
Xylococculus, 1455
Xylocopa, behavior, 884
  (Schoenherria) barbatella, 886
  (Megaxylocopa) fimbriata, 884
  (Neoxylocopa) gualanensis, 884
  (S.) muscaria, 884
  (S.) subvirescens, 885
Xystodesmidae, 1061

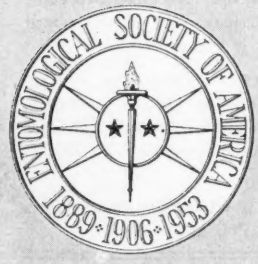
Z

Zabrachia magnicornis, 875
Zabrotes cruciger, 1271
  densus, 1271
  obliteratus, 1271
  planifrons, 1271
  spectabilis, 1271
  subnitens, 1271
Zectran, and CNS of American cockroach, 619
Zelus renardii, 614
Zethus pipiens, 1531
Zodion abitus, 277
  albonotatum, status of, 276
  americanum, 277
  auricaudatum, status of, 276
  californicum, 277
  cinereiventre, 277
  flavocaudatum, 277
  fulvifrons, 277
  intermedium, 277
  nigrifrons, 277
  obliquefasciatum, 277
  pictulum, 277
  triste, 277
  zebrinum, status of, 276
Zygodontomys cherriei, 404

ANNALS *of the*

ENTOMOLOGICAL SOCIETY OF AMERICA

Volume 61—1968



Published by the
ENTOMOLOGICAL SOCIETY OF AMERICA

ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA

R. H. NELSON, *Executive Secretary*
RALPH W. BUNN, *Managing Editor*
4603 Calvert Road, College Park, Maryland 20740

WILLIAM H. ANDERSON, *Editor*
Route 2, Snow Hill, Maryland 21863

EDITORIAL BOARD

J. T. MEDLER, *Chairman,* Madison, Wis. (A, 1968)

R. H. ARNETT, JR., Lafayette, Ind. (A, 1969)
O. P. BRELAND, Austin, Tex. (D, 1970)
K. G. SWENSON, Corvallis, Oreg. (C, 1971)
M. H. J. WEIDEN, Clayton, N. C. (B, 1972)

A bimonthly journal devoted to the following basic subdivisions of entomology: biology, biochemistry, ecology, genetics, morphology, pathology, physiology, and systematics. Contributions should not have economic application or chemical control as their primary objective. However, research on economically important arthropods and studies involving the use of chemicals as metabolic inhibitors are within the scope of this journal. Authors are requested to consider carefully these criteria before submitting their manuscripts.

TERMS OF SUBSCRIPTION. Non-members in North America and U. S. Possessions—$20.00 per year; elsewhere—$20.00 plus $1.00 postage. Single copies $4.00. **Deliveries overseas** are not guaranteed and foreign mailings are made at the subscriber's risk.

A *single order* for the ANNALS OF THE ENTOMOLOGICAL SOCIETY OF AMERICA and the JOURNAL OF ECONOMIC ENTOMOLOGY, *if sent to the same address,* may be obtained at a **COMBINATION PRICE** of $35.00 per year in North America and U. S. Possessions; $37.00 elsewhere.

LOST NUMBERS. Missing numbers cannot be supplied free of charge unless notice is received within 60 days after the appearance of issues concerned.

BACK NUMBERS. The Executive Secretary will be glad to quote prices upon request.

REPRINTS. No gratis copies are supplied. An order form and schedule of prices which will apply to orders received before the ANNALS is printed are sent with proof. For price schedule, see BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA, Volume 7, No. 1, March 1961, or page ii of Vol. 54(1) of the ANNALS.

BUSINESS COMMUNICATIONS to the Society and **SUBSCRIPTION AND MATTERS PERTAINING TO ADVERTISEMENTS** should be sent to the Executive Secretary, Entomological Society of America, 4603 Calvert Road, College Park, Md. 20740. Changes of address must reach the office of the Executive Secretary 5 days prior to the month of issue to be effective for that month. Members should make use of the postal regulations which provide for forwarding of second class mail if postage upon delivery is guaranteed.

ALL MANUSCRIPTS and other copy for the ANNALS should be sent to the Executive Secretary. Prompt publication of acceptable matter may be secured by payment of the cost of printing and mailing ($35.00 per page). Before preparing manuscripts for publication in the ANNALS, authors are urged to consult the Publication Policies and Instructions for Contributors given in the BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA Vol. 10(2): 105–8, June 1964. Reproduction of author's summaries is authorized.

PAGE CHARGES are $20.00 per page, partial pages proportionately. This charge is waived for those papers of 1 printed page or less. See BULLETIN OF THE ENTOMOLOGICAL SOCIETY OF AMERICA Vol. 8(4): 209.

ENTOMOLOGICAL SOCIETY OF AMERICA

OFFICERS FOR 1968

President—Bailey B. Pepper, New Brunswick, New Jersey
President-Elect—C. W. Sabrosky, Washington, D. C.
Executive Secretary—R. H. Nelson, College Park, Maryland

GOVERNING BOARD

Bailey B. Pepper, New Brunswick, New Jersey (1969)

A. W. A. Brown, London, Ontario
(Past-President, 1968)
Glenn E. Carman, Riverside, California
(Pacific, 1968)
Paul A. Dahm, Ames, Iowa
(North Central, 1969)
Henry S. Dybas, Chicago, Illinois
(A, 1969)
D. C. Earley, Los Fresnos, Texas
(Southwestern, 1970)
W. G. Eden, Gainesville, Florida
(Southeastern, 1968)
R. E. Hamman, Ardsley, New York
(Eastern, 1970)
R. V. Harper, Sacramento, California
(E, 1968)
H. F. Madsen, Summerland, British Columbia
(F, 1970)
R. H. Nelson, College Park, Maryland
(Non-Voting)
Albert S. Perry, Savannah, Georgia
(B, 1969)
David Pimentel, Ithaca, New York
(C, 1970)
C. W. Sabrosky, Washington, D. C.
(1970)
George S. Stains, Alameda, California
(D, 1968)

BRANCH OFFICERS

Chairmen

Ralph W. Sherman—Hyattsville, Maryland (Eastern)
Philip C. Stone—Columbia, Missouri (North Central)
John E. Swift—Berkeley, California (Pacific)
John S. Roussel—Baton Rouge, Louisiana (Southeastern)
W. S. McGregor—Lake Jackson, Texas (Southwestern)

Chairmen-Elect

R. E. Heal—Elizabeth, New Jersey (Eastern)
A. C. Hodson—St. Paul, Minnesota (North Central)
R. E. Rieder—Yakima, Washington (Pacific)
C. M. Beckham—Experiment, Georgia (Southeastern)
N. M. Randolph—College Station, Texas (Southwestern)

Secretary-Treasurers

J. Peter Johnson—New Haven, Connecticut (Eastern)
Robert E. Treece—Wooster, Ohio (North Central)
William W. Allen—Berkeley, California (Pacific)
Louis C. Kuitert—Gainesville, Florida (Southeastern)
Stanley Coppock—Stillwater, Oklahoma (Southwestern)

AUTHOR INDEX TO VOLUME 61

(SN = Scientific Note)

A

ABASA, RUBEN O.—An Apholate-Resistant Strain of the House Fly, *Musca domestica*. II. Ovarian Growth and Oögenesis.....(Nov.) 1351
ABBOTT, CYRIL E.—Inherited Melanism in the Large Milkweed Bug, *Oncopeltus fasciatus* (Heteroptera: Lygaeidae).....(SN, Mar.) 542
ADAMS, R. H., see D. G. BOTTRELL....(Sept.) 1053
ADAMS, T. S., AND D. R. NELSON—Bioassay of Crude Extracts for the Factor That Prevents Second Matings in Female *Musca domestica* .....(Jan.) 112
ADAMS, T. S., AND M. S. MULLA—The Reproductive Biology of *Hippelates collusor*. III. Effect of Temperature on Oögenesis..(Mar.) 368
AKRE, ROGER D., see CARL W. RETTENMEYER .....(Sept.) 1317
ALLEN, DOUGLAS C.—The *Phaeogenes* Sensu Stricto of North America.....(May) 625
ALLEN, DOUGLAS C., FRED B. KNIGHT, AND JOHN L. FOLTZ—A Technique for Rearing *Choristoneura pinus* on Artificial Diet..... .....(Mar.) 362
ALLEN, DOUGLAS C., AND JOHN B. DIMOND—A Histological Study of White Pine Shoots Attacked by the Exsule Stage of *Pineus pinifoliae* .....(July) 962
ALLEN, RICHARD K., AND GEORGE F. EDMUNDS, JR.—A New Synonymy in *Ephemerella*..... .....(SN, July) 1044
ALSOP, D. W., see T. EISNER.....(May) 610
AMMAN, GENE D.—Effects of Temperature and Humidity on Development and Hatching of Eggs of *Adelges piceae*.....(Nov.) 1606
ANDERSON, D. M.—Observations on the Pupae of *Anthonomus grandis grandis* Boheman and *A. grandis thurberiae* Pierce (Coleoptera: Curculionidae) .....(Jan.) 125
ANDERSON, JOHN F., AND STEPHEN W. HITCHCOCK—Biology of *Chironomus atrella* in a Tidal Cove.....(Nov.) 1597
ANDERSON, ROBERT C., AND J. D. PASCHKE—The Biology and Ecology of *Anaphes flavipes* (Hymenoptera: Mymaridae), an Exotic Egg Parasite of the Cereal Leaf Beetle....(Jan.) 1
APPLE, J. W., see W. J. KNEE....(SN, Nov.) 1627
ARMBRUST, EDWARD J., AND GEORGE G. GYRISCO—The Influence of Some Physical and Biological Factors on the Phototactic Response of the Alfalfa Weevil, *Hypera postica* (Nov.) 1561
ARNETT, ROSS H., JR.—Measurement of Adventitious Sounds Produced by Some Stored-Product Insects.....(Sept.) 1170
ARURKAR, SURESH K., AND CHARLES O. KNOWLES—Electrophoretic Studies of Insect Esterases.....(May) 686
ATCHLEY, WILLIAM R., AND R. C. JACKSON—Techniques and Preliminary Studies on the Chromosomes of *Nilobezzia* and *Bezzia*..... .....(Nov.) 1524
AUCLAIR, J. L., see J. R. RAULSTON...(Nov.) 1495
AXTELL, R. C., see W. P. DUBOSE, JR...(Nov.) 1547

B

BAILEY, CHARLES L., AND HARVEY L. CHADA—Spider Populations in Grain Sorghums..... .....(May) 567
BAKER, EDWARD W.—Two New Genera of Tydeidae (Acarina).....(July) 968
BAKER, EDWARD W.—The Genus *Lorryia*..... .....(July) 986
BAKER, EDWARD W.—The Genus *Pronematus* Canestrini.....(Sept.) 1091
BAKER, EDWARD W.—The Genus *Paralorryia* .....(Sept.) 1097
BAKER, J. E., AND D. M. NORRIS—Further Biological and Chemical Aspects of Host Selection by *Scolytus multistriatus*...(Sept.) 1248
BAKER, J. M., see D. M. NORRIS.....(Nov.) 1473
BAKER, J. R., AND H. H. NEUNZIG—The Egg Masses, Eggs, and First-Instar Larvae of Eastern North American Corydalidae (Sept.) 1181
BALDUF, W. V.—Bionomic Notes on the Hexapodous Parasites of *Acrobasis rubrifasciella* .....(Mar.) 463
BALSBAUGH, EDWARD U., JR., see B. MCDANIEL .....(May) 765
BANEGAS, A. D., AND H. MOURIER—Effects of Gamma Radiation on the Fertility of the Torsalo, *Dermatobia hominis* (Diptera: Cuterebridae) .....(Jan.) 23

BANERJEE, AMAL C.—Microsporidian Diseases of Sod Webworms in Bluegrass Lawns ..... (SN, Mar.)) 544
BANKS, WILLIAM M., AND ETELKA F. RANDOLPH—Free Amino Acids in the Cockroach *Blaberus giganteus* ..... (SN, July) 1027
BARKER, KENNETH R., see OSMOND P. BRELAND ..... (SN, July) 1037
BARTH, ROBERT H., JR., see FRANZ ENGELMANN ..... (Mar.) 503
BARTLETT, ALAN C., E. B. MATTIX, AND N. M. WILSON—Multiple Matings and Use of Sperm in the Boll Weevil, *Anthonomus grandis* ..... (Sept.) 1148
BATH, JAMES E., AND R. KEITH CHAPMAN—Influence of Aphid Stage on Acquisition and Inoculation Phases of Pea Enation Mosaic Virus Transmission ..... (July) 906
BEARDSLEY, JOHN W.—External Morphology of the Adult Male of *Matsucoccus bisetosus* ..... (Nov.) 1449
BEAVERS, J. B., see H. TASHIRO ..... (July) 1009
BECK, STANLEY D., G. M. CHIPPENDALE, AND D. E. SWINTON—Nutrition of the European Corn Borer, *Ostrinia nubilalis*. VI. A Larval Rearing Medium without Crude Plant Fractions ..... (Mar.) 459
BEER, JAMES R., see ROGER D. PRICE ..... (Mar.) 261
BELL, J. C., JR., see W. M. CIESLA ..... (SN, Jan.) 235
BENSCHOTER, C. A.—Diapause and Development of *Heliothis zea* and *H. virescens* in Controlled Environments ..... (July) 953
BENSCHOTER, C. A., see N. E. FLITTERS (Jan.) 65
BENSCHOTER, C. A.—Influence of Light Manipulation on Diapause of *Heliothis zea* and *H. virescens* ..... (Sept.) 1272
BENTON, ALLEN W., see ROGER P. SIMON ..... (SN, Mar.) 542
BERRYMAN, ALAN A.—Estimation of Oviposition by the Fir Engraver, *Scolytus ventralis* (Coleoptera: Scolytidae) ..... (SN, Jan.) 227
BHAT, U. KRISHNA MURTHY—Distribution of Fat and Glycogen in the Flight Muscle of *Brachythemis contaminata* ..... (SN, July) 1033
BIESELE, JOHN J., see OSMOND P. BRELAND ..... (SN, July) 1037
BISHOP, W. O., see D. M. NORRIS ..... (July) 852
BLANKENSHIP, JAMES W., see GLENN J. MILLER ..... (SN, July) 1035
BLANKENSHIP, JAMES W., AND GLENN J. MILLER—Incorporation of ^{14}C-Labeled Acetate and Glucose into Triglycerides of *Vitula edmandsae serratilineella* Larvae (SN, July) 1036
BLUM, MURRAY S., FLAVIO PADOVANI, HENRY R. HERMANN, JR., AND PAUL B. KANNOWSKI—Chemical Releasers of Social Behavior. XI. Terpenes in the Mandibular Glands of *Lasius umbratus* ..... (Nov.) 1354
BORDON, JOHN H.—Antennal Morphology of *Ips confusus* (Coleoptera: Scolytidae) ..... (Jan.) 10
BOTTRELL, D. G., J. H. YOUNG, R. G. PRICE, AND R. H. ADAMS—Parasites Reared from *Heliothis* spp. in Oklahoma in 1965 and 1966 ..... (Sept.) 1053
BOUSH, G. MALLORY, see FLORENCE V. DUNKEL ..... (May) 755
BOWEN, WILLIAM R., see VERNON M. STERN ..... (SN, July) 1032
BOYD, F. J., AND H. N. PITRE—Studies on the Field Biology of *Graminella nigrifrons*, a Vector of Corn Stunt Virus in Mississippi ..... (Nov.) 1423
BRADY, U. EUGENE, AND ELEANOR B. SMITHWICK—Production and Release of Sex Attractant by the Female Indian-Meal Moth, *Plodia interpunctella* ..... (Sept.) 1260
BRATKOWSKI, THOMAS A., AND CHARLES O. KNOWLES—Properties of an Acetylcholinesterase from the Face Fly, *Musca autumnalis* ..... (Mar.) 397
BRELAND, OSMOND P., KENNETH R. BARKER, CHARLES D. EDDLEMAN, AND JOHN J. BIESELE—Centrioles in the Spermatids of Insects ..... (SN, July) 1037
BREMNER, K. C., see JAMES H. OLIVER, JR. ..... (July) 837
BREZNER, JEROME, see FRANK E. KURCZEWSKI ..... (SN, Jan.) 230
BROWN, HARLEY P.—*Psephenus* (Coleoptera: Psephenidae) Parasitized by a New Chalcidoid (Hymenoptera: Eulophidae). II. Biology of the Parasite ..... (Mar.) 452
BROWN, N. SANDRA—Methods for the Study of Tracheal System and Copulatory Apparatus in *Menacanthus stramineus* ..... (SN, May) 788
BRUST, R. A., AND J. GIARDINO—Illumination and Photography of Mosquito Eggs ..... (SN, July) 1039
BUCKINGHAM, G. R.—Pygidial Glands in Male *Opius* (Hymenoptera: Braconidae) ..... (SN, Jan.) 233
BUFFINGTON, JOHN D., AND JERROLD H. ZAR—Changes in Fatty Acid Composition of *Culex pipiens pipiens* During Hibernation ..... (SN, May) 774
BURKS, B. D.—*Psephenus* (Coleoptera: Psephenidae) Parasitized by a New Chalcidiod (Hymenoptera: Eulophidae). I. Description of the Parasite ..... (Mar.) 450

C

CALLAHAN, P. S., E. F. TASCHENBERG, AND THELMA CARLYSLE—The Scape and Pedicel Dome Sensors—A Dielectric Aerial Waveguide on the Antennae of Night-Flying Moths ..... (July) 934
CANTWELL, GEORGE E., see JUDITH A. WEST ..... (Jan.) 13
CARLYSLE, THELMA, see P. S. CALLAHAN ..... (July) 934

CARREL, J. E., see T. EISNER.....(May) 610
CARSON, H. L., AND M. R. WHEELER—*Drosophila endobranchia,* a New Drosophilid Associated with Land Crabs in the West Indies.....(May) 675
CHADA, HARVEY L., see CHARLES L. BAILEY.....(May) 567
CHAPMAN, P. J., S. E. LIENK, AND R. W. DEAN—Bionomics of *Choristoneura rosaceana*.....(Mar.) 285
CHAPMAN, R. KEITH, see JAMES E. BATH.....(July) 906
CHAUDHRY, H. S., AND R. P. D. KAPOOR—Effect of Relative Humidity on the Developmental Stages of *Tribolium castaneum* (Coleoptera: Tenebrionidae).....(Mar.) 290
CHIANG, H. C.—Ecology of Insect Swarms. V. Movement of Individual Midges, *Anarete pritchardi,* within a Swarm.....(May) 584
CHIANG, H. C.—Host Variety as an Ecological Environmental Factor in the Population Dynamics of the European Corn Borer, *Ostrinia nubilalis*.....(Nov.) 1521
CHIANG, H. C., A. J. KEASTER, AND G. L. REED—Differences in Ecological Responses of Three Biotypes of *Ostrinia nubilalis* from the North Central United States.....(Jan.) 140
CHIPPENDALE, G. M., see STANLEY D. BECK.....(Mar.) 459
CHOPRA, NARINDER PERKASH—A Revision of the Genus *Arhyssus* Stål.....(May) 629
CIESLA, W. M., AND J. C. BELL, JR.—The Pine Engraver, *Ips pini* (Coleoptera: Scolytidae), in the Southern Appalachian Mountains.....(SN, Jan.) 235
CLARK, ARNOLD M., AND ROBERT E. SMITH—The Modification of Adult Life Span in *Bracon hebetor* (Hymenoptera: Braconidae) by Irradiation in Nitrogen.....(SN, Mar.) 541
CLARKE, J. F. GATES—The Correct Name for the Mimosa Webworm (Lepidoptera: Glyphipterygidae).....(SN, Jan.) 228
CLEVELAND, M. L., T. T. Y. WONG, AND K. W. LAMANSKY—Rearing Methods and Biology of the Lesser Peach Tree Borer, *Synanthedon pictipes,* in the Laboratory.....(July) 809
CLIFFORD, CARLETON M., see GLEN M. KOHLS.....(Sept.) 1113
COLLINS, R. P.—Carbonyl Compounds Produced by the Bed Bug, *Cimex lectularius*.....(SN, Sept.) 1338
COLMER, ARTHUR R., see W. J. NUNEZ (Nov.) 1427
COOK, PAUL P., JR., see DAVID E. PARVIN.....(SN, May) 784
COOK, PAUL P., JR., AND HENRY S. HORN—A Sturdy Trap for Sampling Emergent Odonata.....(Nov.) 1506
COUPE, T. R., AND J. T. SCHULZ—The Influence of Controlled Environments and Grass Hosts on the Life Cycle of *Endria inimica* (Homoptera: Cicadellidae).....(Jan.) 74
COUPE, T. R., AND J. T. SCHULZ—Biology of *Endria inimica* in North Dakota.....(July) 802
COWAN, BRUCE D., AND WM. M. ROGOFF—Variation and Heritability of Responsiveness of Individual Male House Flies, *Musca domestica,* to the Female Sex Pheromone.....(Sept.) 1215
COYNE, JOHN F.—*Laspeyresia ingens,* A Seedworm Infesting Cones of Longleaf Pine.....(Sept.) 1116
CRAIG, G. B., JR., see W. K. HARTBERG.....(July) 865
CRAIG, GEORGE B., JR., see JAMES W. TRUMAN.....(July) 1020
CRAWFORD, CLIFFORD S.—Oviposition Rhythm in *Crambus teterrellus:* Temperature-Depression Effects and Apparent Circadian Periodicity.....(Nov.) 1481
CROSSLEY, D. A., JR., see EDWARD F. MENHINICK.....(Nov.) 1359
CUTCHER, J. J., see J. P. WOODRING (SN, July) 1031

D

DADD, R. H.—Dietary Amino Acids and Wing Determination in the Aphid *Myzus persicae*.....(Sept.) 1201
DATERMAN, G. E.—Laboratory Mating of the European Pine Shoot Moth, *Rhyacionia buoliana*.....(July) 920
DAVICH, T. B., see F. R. GILLILAND, JR.....(July) 834
DAVIES, D. M., see SURESH B. LALL.....(Jan.) 222
DAVIS, D. W., see M. S. LEE.....(Mar.) 251
DAVIS, D. W., see J. W. SOUTHWICK.....(Sept.) 1228
DAVIS, FRANK M.—Morphology of the Reproductive Systems of the Southwestern Corn Borer, *Diatraea grandiosella*.....(Sept.) 1143
DEAN, R. W., see P. J. CHAPMAN.....(Mar.) 285
DEBACH, PAUL, AND SUDHA V. RAO—Transformation of Inseminated Females of *Aphytis lingnanensis* into Factitious Virgins by Low-Temperature Treatment.....(Mar.) 332
DICKERSON, W. A., see BENJAMIN PUTTLER.....(Nov.) 1545
DILLERY, DEAN G., see CLYDE F. SMITH.....(Jan.) 185
DIMOND, JOHN B., see DOUGLAS C. ALLEN.....(July) 962
DOANE, CHARLES C.—Aspects of Mating Behavior of the Gypsy Moth.....(May) 768
DODGE, H. RODNEY—The Sarcophagidae of Barro Colorado Island, Panama (Diptera).....(Mar.) 421
DOWDY, W. W.—An Ecological Study of Some Millipedes in Two Central Missouri Communities.....(Sept.) 1059
DREW, W. A., see H. HALL.....(SN, Sept.) 1348

DuBose, W. P., Jr., and R. C. Axtell—Sensilla on the Antennal Flagella of *Hippelates* Eye Gnats ..... (Nov.) 1547
Dunkel, Florence V., and G. Mallory Boush—Studies on the Internal Anatomy of the Black Carpet Beetle, *Attagenus megatoma* ..... (May) 755
Durant, John A.—Leafhopper Populations on Ten Corn Inbred Lines at Florence, South Carolina ..... (Nov.) 1433

E

Earle, N. W., and John MacFarland—A Unisexual Strain of the Salt-Marsh Caterpillar, *Estigmene acrea* ..... (July) 949
Earle, N. W., see C. L. Mangum .... (Sept.) 1125
Eddleman, Charles Douglas—Morphological and Biometrical Differentiation of the Larval Instars of Mosquitoes. II. *Orthopodomyia alba* and *O. signifera* ..... (Nov.) 1372
Eddleman, Charles D., see Osmond P. Breland ..... (SN, July) 1037
Edman, John D., see Judy A. Williams .... (SN, Sept.) 1336
Edmunds, George F., Jr., see Richard K. Allen ..... (SN, July) 1044
Edwards, Lawrence J.—Dissection of the Endocrine Organs—Corpus Allatum, Corpus Cardiacum, and Ecdysial (Prothoracic) Gland—of the Larva of *Heliothis zea* (July) 965
Edward, L. J., see R. L. Patton .. (SN, July) 1046
Eikenbary, R. D., and Richard C. Fox—Arthropod Predators of the Nantucket Pine Tip Moth, *Rhyacionia frustrana* ..... (Sept.) 1218
Eikenbary, R. D., and Richard C. Fox—Responses of Nantucket Pine Tip Moth Parasites to Tree Level, Orientation, and Hosts per Pine Tip ..... (Nov.) 1380
Eikenbary, R. D., and Richard C. Fox—Investigations of *Campoplex frustranae*, a Parasite of the Nantucket Pine Tip Moth (Nov.) 1430
Eisenbraun, E. J., see H. Hall .. (SN, Sept.) 1348
Eisner, T., Yvonne C. Meinwald, D. W. Alsop, and J. E. Carrel—Defense Mechanisms of Arthropods. XXI. Formic Acid and *n*-Nonyl Acetate in the Defensive Spray of Two Species of *Helluomorphoides* .... (May) 610
El Badry, Esam A.—The Genus *Phytoseius* in Egypt and the Sudan ..... (Sept.) 1083
El Badry, Esam A.—The Genus *Amblyseius* in the Sudan ..... (Sept.) 1087
Eldefrawi, M. E., see A. Toppozada .. (Sept.) 1326
Engelmann, Franz, and Robert H. Barth, Jr.—Endocrine Control of Female Receptivity in *Leucophaea maderae* (Blattaria) .. (Mar.) 503
Evans, D. A., and J. T. Medler—Laboratory Investigations of Flight Activity and Production of Alatae in the Corn Leaf Aphid, *Rhopalosiphum maidis* (Homoptera: Aphididae) ..... (Jan.) 60
Evans, F. D. S., see J. R. Linley—(SN, May) 775
Evans, Howard E.—Notes on Some Digger Wasps That Prey upon Leafhoppers ..... (SN, Sept.) 1343
Evans, Howard E., and Robert W. Matthews—North American *Bembix*, a Revised Key and Suggested Grouping ..... (Sept.) 1284

F

Feir, Dorothy, and Elizabeth McClain—Mitotic Activity of the Circulating Hemocytes of the Large Milkweed Bug, *Oncopeltus fasciatus* ..... (Mar.) 413
Feir, Dorothy, and Elizabeth McClain—Induced Changes in the Mitotic Activity of Hemocytes of the Large Milkweed Bug, *Oncopeltus fasciatus* ..... (Mar.) 416
Feng, Kuo-Ching, see Wendell L. Roelofs ..... (Mar.) 312
Flanders, S. E.—The Validity of *Trichogramma pretiosum* ..... (Sept.) 1122
Flitters, N. E.—Insect Body Temperatures Determined with Microthermoelectric Thermometry ..... (Jan.) 36
Flitters, N. E.—Microelectrothermometry for Psychrometric Determinations of Insect Leaf Microhabitats ..... (July) 923
Flitters, N. E., and C. A. Benschoter—Survival of Screw-Worm Pupae Exposed to Simulated Winter Temperatures from Selected Sites in Texas ..... (Jan.) 65
Foltz, John L., see Douglas C. Allen (Mar.) 362
Foote, B. A., see W. H. Robinson .... (Nov.) 1587
Fox, Richard C., see R. D. Eikenbary ..... (Sept.) 1218; (Nov.) 1380, 1430
Fraenkel, G., see Ting H. Hsiao ..... (Jan.) 44; (Mar.) 476, 485, 493
Frankie, G. W., see C. S. Koehler ... (Nov.) 1500
Freeman, B. A.—Status of *Zodion zebrinum*, *Z. auricaudatum*, and *Z. albonotatum* (Diptera: Conopidae) ..... (Mar.) 276
Fremling, C. R., see L. L. Thomforde ..... (Sept.) 1235
Frost, S. W.—Erich Martin Hering (1893–1967) ..... (Obit. Mar.) 555
Fukuto, T. R., see R. L. Metcalf .... (May) 618
Furniss, Malcolm M.—Notes on the Biology and Effectiveness of *Karpinskiella paratomicobia* Parasitizing Adults of *Dendroctonus pseudotsugae* ..... (Nov.) 1384
Furniss, M. M., see R. F. Schmitz ..... (SN, Nov.) 1626

G

Galford, Jimmy R., and John W. Peacock—Combined Laboratory and Greenhouse Techniques for Year-Round Rearing of the Mimosa Webworm, *Homadaula anisocentra* ..... (July) 919

GALLUN, R. L., see J. A. SCHILLINGER, JR. . . . (July) 900
GALLUN, R. L., see J. H. HATCHETT . . . (Nov.) 1446
GAMBRELL, F. L., see P. C. LIPPOLD . . . . (Jan.) 151
GARTHE, WILLIAM A., AND ARTHUR A. MUKA —Feeding Responses in Larvae of *Anthrenus flavipes* . . . . (Sept.) 1210
GASTON, LYLE K., see H. H. SHOREY . . . . (Mar.) 372; (July) 857
GERHOLD, HENRY D., see ROBERT L. SOLES . . . . (Nov.) 1468
GERLING, DAN, AND E. F. LEGNER—Developmental History and Reproduction of *Spalangia cameroni,* Parasite of Synanthropic Flies . . . . (Nov.) 1436
GHOSH, A. K., AND D. N. RAYCHAUDHURI—New Aphids from Northeast India (Homoptera) . . . . (May) 752
GIARDINO, J., see R. A. BRUST . . . . (SN, July) 1039
GIBSON, LESTER P.—The 1958 Pine Tip Moth Collapse in Ohio . . . . (SN, May) 786
GILLILAND, F. R., JR., AND T. B. DAVICH—Influence of Population Density on Mating Behavior of Chemosterilized, Untreated, or Overwintered Boll Weevils, *Anthonomus grandis* . . . . (July) 834
GILMORE, S. K., see R. L. PATTON . . (SN, July) 1046
GLICK, BRUCE, AND NORMAN MITLIN—An Immunological Study of the Antigens of *Anthonomus grandis grandis* and *Anthonomus grandis thurberiae* . . . . (SN, Mar.) 548
GOEDON, RICHARD D., AND DONALD W. RICKER —The Phytophagous Insect Fauna of Russian Thistle (*Salsola kali* var. *tenuifolia*) in Southern California . . . . (Jan.) 67
GORDON, HAROLD T., see WERNER LOHER . . . . (Nov.) 1566
GORDON, H. T., AND W. LOHER—Egg Production and Male Activation in New Laboratory Strains of the Large Milkweed Bug, *Oncopeltus fasciatus* . . . . (Nov.) 1573
GOULDING, ROBERT L., see BRIAN T. STURGESS . . . . (July) 903
GRAHAM, CHARLES L., see WAYNE A. ROWLEY . . . . (Nov.) 1507
GRANADOS, ROBERT R., see DONALD W. ROBERTS . . . . (SN, July) 1042
GRAVES, ANNE C. F., see ROBERT C. GRAVES . . . . (Mar.) 383
GRAVES, ROBERT C., AND ANNE C. F. GRAVES—The Insects and Other Inhabitants of Shelf Fungi in the Southern Blue Ridge Region of Western North Carolina. III. Isoptera, Lepidoptera, and Ants . . . . (Mar.) 383
GREANY, P. D., see E. R. OATMAN . . . . (July) 956
GREENBERG, BERNARD — Micro-Potentiometric *p*H Determinations of Muscoid Maggot Digestive Tracts . . . . (Mar.) 365
GREER, RAYMOND T., see PAUL O. SCHEIE . . . . (SN, Sept.) 1346
GRIGARICK, A. A., AND W. H. LANGE—Seasonal Development and Emergence of Two Species of Gall-Forming Aphids, *Pemphigus bursarius* and *P. nortoni,* Associated with Poplar Trees in California . . . . (Mar.) 509
GRIMBLE, DAVID G., see WAYNE L. MYERS . . . . (Nov.) 1418
GRUHN, W. B., see R. L. METCALF . . . . (May) 618
GUNNISON, A. F., AND R. A. MORSE—Source of the Ether-Soluble Organics of Stings of the Honey Bee, *Apis mellifera* (Hymenoptera: Apidae) . . . . (Jan.) 5
GUPTA, A. P.—Hemocytes of *Scutigerella immaculata* and the Ancestry of Insecta . . . . (SN, July) 1028
GUPTA, A. P., AND D. J. SUTHERLAND—Effects of Sublethal Doses of Chlordane on the Hemocytes and Midgut Epithelium of *Periplaneta americana* . . . . (July) 910
GUSTIN, RALPH D., AND WARREN N. STONER—Biology of *Deltocephalus sonorus* (Homoptera: Cicadellidae) . . . . (Jan.) 77
GUTHRIE, F. E., AND E. HODGSON—Adaption of Insects to Nornicotine . . . . (SN, Mar.) 545
GYRISCO, GEORGE G., see EDWARD J. ARMBRUST . . . . (Nov.) 1561

H

HAGSTRUM, DAVID W.—The Molting Behavior of the Black Widow Spider, *Latrodectus mactans* . . . . (May) 591
HAJELA, K. P., AND B. K. TANDAN—Two New Mallophaga Species of the Genus *Ardeicola* Clay, 1935 (Ischnocera, Philopteridae) . . . . (Jan.) 146
HALL, H., W. A. DREW, AND E. J. EISENBRAUN A Portable Battery-Operated Aspirator (Ant Collector) . . . . (SN, Sept.) 1348
HANSEN, LAUREL D., AND ROBERT F. HARWOOD Comparisons of Diapause and Nondiapause Larvae of the Codling Moth, *Carpocapsa pomonella* . . . . (Nov.) 1611
HARMAN, D. M., AND H. M. KULMAN—Biology and Natural Control of the White-Pine Weevil in Virginia . . . . (Mar.) 280
HARRIS, R. L., see C. D. SCHMIDT . . (SN, July) 1045
HARRISON, JAMES O.—Some Spiders Associated with Banana Plants in Panama . . . . (July) 878
HARRISON, ROY A., see WILLIAM D. MCENROE . . . . (Sept.) 1239
HART, W. G., see D. K. REED . . . . (Nov.) 1443
HARTBERG, W. K., AND G. B. CRAIG, JR.—Reproductive Isolation in *Stegomyia* Mosquitoes. I. Sexual Isolation Between *Aedes aegypti* and *A. mascarensis* . . . . (July) 865
HARWALKER, M. R., AND K. K. NAIR—Effect of X-Irradiation on Postembryonic Development of the Red Cotton Bug, *Dysdercus koenigii* . . . . (Sept.) 1107

HARWOOD, R. F., see K. HAYASHIYA . . . (Mar.) 278
HARWOOD, ROBERT F., see LAUREL D. HANSEN . . . (Nov.) 1611
HATCHETT, J. H., AND R. L. GALLUN—Frequency of Hessian Fly, *Mayetiola destructor*, Races in Field Populations . . . (Nov.) 1446
HAY, C. JOHN—Frass of Some Wood-Boring Insects in Living Oak (Coleoptera: Cerambycidae; Lepidoptera: Cossidae and Aegeridae) . . . (Mar.) 255
HAYASHIYA, K., AND R. F. HARWOOD—Fatty Acids of the Mosquito *Anopheles freeborni* . . . (Mar.) 278
HEATWOLE, AUDRY, see HAROLD HEATWOLE . . . (Jan.) 18
HEATWOLE, HAROLD, AND AUDRY HEATWOLE—Movements, Host-Fungus Preferences, and Longevity of *Bolitotherus cornutus* (Coleoptera: Tenebrionidae) . . . (Jan.) 18
HELMS, THOMAS J.—Postembryonic Reproductive-Systems Development in *Empoasca fabae* . . . (Mar.) 316
HELMS, THOMAS J.—Anatomy of the Alimentary Canal of *Empoasca fabae* . . . (Nov.) 1604
HENDRICKSON, JOHN A., JR., AND ROBERT R. SOKAL—A Numerical Taxonomic Study of the Genus *Psorophora* (Diptera: Culicidae) . . . (Mar.) 385
HENNEBERRY, T. J., see P. V. VAIL . . . (Mar.) 405
HENSLEY, S. D., see W. J. NUNEZ . . . (Nov.) 1427
HERMANN, HENRY R., JR.—The Hymenopterous Poison Apparatus. V. *Aneuretus simoni* . . . (Sept.) 1315
HERMANN, HENRY, JR., see MURRAY S. BLUM . . . (Nov.) 1354
HEWITT, GEORGE B.—Resistance of Forage Plants to the Feeding of *Melanoplus sanguinipes* . . . (May) 739
HILSENHOFF, WILLIAM L.—Phoresy by *Plecopteracoluthus downesi* on Larvae of *Nigronia serricornis* . . . (SN, Nov.) 1622
HILSENHOFF, WILLIAM L., AND RICHARD P. NARF—Ecology of Chironomidae, Chaoboridae, and Other Benthos in Fourteen Wisconsin Lakes . . . (Sept.) 1173
HITCHCOCK, STEPHEN W., see JOHN F. ANDERSON . . . (Nov.) 1597
HODGSON, E., see F. E. GUTHRIE . . . (SN, Mar.) 545
HOFFMAN, R. A., see C. D. SCHMIDT . . . (SN, July) 1045
HOKAMA, Y., see R. K. WASHINO . . . (SN, May) 785
HOOGSTRAAL, HARRY, MAKRAM N. KAISER, AND GLEN M. KOHLS—The Subgenus *Persicargas* (Ixodoidea, Argasidae, *Argas*). 4. *Argas* (*P.*) *robertsi*, New Species, A Parasite of Australian Fowl, and Keys to Australian Argasid Species . . . (Mar.) 535
HOOGSTRAAL, HARRY, FREDERICK J. SANTANA, AND P. F. DIRK VAN PEENEN—Ticks (Ixodoidea) of Mt. Sontra, Danang, Republic of Vietnam . . . (May) 722
HOOGSTRAAL, HARRY, MAKRAM N. KAISER, AND GLEN M. KOHLS—The Subgenus *Persicargas* (Ixodoidea, Argasidae, *Argas*). 5. *A.* (*P.*) *zumpti*, New Species, a Parasite of the South African Cape Vulture . . . (May) 744
HOOGSTRAAL, HARRY, AND MAKRAM N. KAISER Bat Ticks of the Genus *Argas* (Ixodoidea, Argasidae). 8. *A.* (*Chiropterargas*) *ceylonensis*, New Species, from Ceylon . . . (Sept.) 1049
HOOGSTRAAL, HARRY, see MAKRAM N. KAISER . . . (Sept.) 1228
HOPKINS, T. L., see STEPHEN M. VALDER . . . (July) 827
HORN, HENRY S., see PAUL P. COOK, JR. . . . (Nov.) 1506
HOWLAND, A. F., see P. V. VAIL . . . (Mar.) 405
HOY, MARJORIE, see ALEXANDER SOKOLOFF . . . (SN, Mar.) 550
HSIAO, TING H., AND G. FRAENKEL—The Influence of Nutrient Chemicals on the Feeding Behavior of the Colorado Potato Beetle, *Leptinotarsa decemlineata* (Coleoptera: Chrysomelidae) . . . (Jan.) 44
HSIAO, TING H., AND G. FRAENKEL—Isolation of Phagostimulative Substances from the Host Plant of the Colorado Potato Beetle . . . (Mar.) 476
HSIAO, TING H., AND G. FRAENKEL—The Role of Secondary Plant Substances in the Food Specificity of the Colorado Potato Beetle . . . (Mar.) 485
HSIAO, TING H., AND G. FRAENKEL—Selection and Specificity of the Colorado Potato Beetle for Solanaceous and Nonsolanaceous Plants . . . (Mar.) 493

I

INGLE, S. J., see D. K. REED . . . (Nov.) 1443
ISELIN, WILLIAM A.—A Dermestid, *Trogoderma glabrum*, Infests Comb Honey . . . (SN, Nov.) 1621

J

JACKSON, R. C., see WILLIAM R. ATCHLEY . . . (Nov.) 1524
JACOBSON, GAIL M., AND ROGER G. YOUNG—Specificities of Esterases of the Greater Wax Moth, *Galleria mellonella* . . . (July) 806
JAMES, MAURICE T., see NEWEL M. JORGENSEN . . . (July) 870
JEFFERSON, R. N., H. H. SHOREY, AND R. E. RUBIN—Sex Pheromones of Noctuid Moths. XVI. The Morphology of the Female Sex Pheromone Glands of Eight Species . . . (July) 861
JOHNSON, CLARENCE D.—Bruchidae Type-Specimens Deposited in United States Museums, with Lectotype Designations . . . (Sept.) 1266

JOHNSON, WILLIAM E., JR.—Ecology of Mosquitoes in the Wichita Mountains Wildlife Refuge ..... (Sept.) 1129
JONES, S. L., see R. L. RIDGWAY ... (SN, Jan.) 232
JONES, S. L., see P. D. LINGREN ..... (May) 613
JORGENSEN, NEWEL M., AND MAURICE T. JAMES —Evolution of the Antenna in the Stratiomyidae (Diptera) ..... (July) 870
JUDGE, F. D.—Polymorphism in a Subterranean Aphid, *Pemphigus bursarius*. I. Factors Affecting the Development of Sexuparae. (July) 819

K

KAISER, MAKRAM N., see HARRY HOOGSTRAAL ..... (Mar.) 535; (May) 744; (Sept.) 1049
KAISER, MAKRAM N., AND HARRY HOOGSTRAAL Redescription of *Hyalomma* (*H.*) *erythraeum* Tonelli-Rondelli (Resurrected), Description of the Female and Immature Stages, and Hosts and Distribution in Ethiopia and Somali Republic ..... (Sept.) 1228
KAMRAN, MERVYN A.—Life History and Behavior of *Polydesma umbricola* in Hawaii ..... (July) 795
KANAVEL, ROBERT F., see ALLEN G. SELHIME ..... (Sept.) 1212
KANNOWSKI, PAUL B., see MURRAY S. BLUM ..... (Nov.) 1354
KAPOOR, R. P. D., see H. S. CHAUDHRY (Mar.) 290
KARE, MORLEY R., see RAYMOND S. H. YANG ..... (SN, May) 781
KAUFMANN, TOHKO—Observations on the Biology and Behavior of the Evergreen Bagworm Moth, *Thyridopteryx ephemeraeformis* (Lepidoptera: Psychidae) ..... (Jan.) 38
KAUFMANN, TOHKO—A Laboratory Study of the Feeding Habits of *Melanoplus differentialis* in Maryland (Orthoptera: Acrididae) ..... (Jan.) 173
KEASTER, A. J., see H. C. CHIANG ..... (Jan.) 140
KIM, KE CHUNG—Revision of *Sphaerocera*, with Description of a New Genus, *Afromyia* (Diptera: Sphaeroceridae) ..... (Mar.) 296
KING, EDWIN W., see JERRY A. PAYNE (May) 565
KINSEY, M. G., see D. L. MCLEAN ..... (May) 730; (July) 927
KISTNER, DAVID H.—Revision of the Myrmecophilous Species of the Tribe Myrmedoniini. Part II. The Genera *Aenictonia* and *Anommatochara*—Their Relationship and Behavior ..... (July) 971
KLOSTERMEYER, LYLE E., AND CALVIN F. SOO HOO—Chromosome Number in the Leaf-Cutter Bee, *Megachile rotundata* .... (SN, May) 782
KNEE, W. J., AND J. W. APPLE—Biological Observations on and Distribution of the Spotted Alfalfa Aphid in Wisconsin ..... (SN, Nov.) 1627
KNIGHT, FRED B., see DOUGLAS C. ALLEN ..... (Mar.) 362
KNIGHT, FRED B., see WAYNE L. MYERS ..... (Nov.) 1418
KNOKE, J. K., see J. L. SAUNDERS ..... (May) 587
KNOKE, J. K., see D. M. NORRIS ..... (July) 852
KNOWLES, CHARLES O., see THOMAS A. BRATKOWSKI ..... (Mar.) 397
KNOWLES, CHARLES O., see SURESH K. ARURKAR ..... (May) 686
KNUTSON, HERBERT—Ralph Langley Parker (1892–1968) ..... (Obit. Nov.) 1631
KOEHLER, C. S., see SARA S. ROSENTHAL ..... (Mar.) 531
KOEHLER, C. S., AND G. W. FRANKIE—Distribution and Seasonal Abundance of *Oligonychus subnudus* on Monterey Pine .... (Nov.) 1500
KOHLS, GLEN M., see HARRY HOOGSTRAAL .... (Mar.) 535; (May) 744
KOHLS, GLEN M., AND CARLETON M. CLIFFORD —The Subgenus *Persicargas* (Ixodoidea, Argasidae, *Argas*). 6. *A.* (*P.*) *giganteus*, n. sp., from Wild Birds in Western United States and Sonora, Mexico ..... (Sept.) 1113
KOSS, RICHARD W.—Morphology and Taxonomic Use of Ephemeroptera Eggs ... (May) 696
KOT, JAN, see WILLIAM D. MCENROE .. (Sept.) 1255
KRAFT, KENNETH J.—Ecology of the Cone Moth *Laspeyresia toreuta* in *Pinus banksiana* Stands ..... (Nov.) 1462
KRAUSE, C. R., see C. O. REXRODE ..... (July) 814; (SN, Sept.) 1340
KRISHNA, S. S., AND N. B. SINGH—Sugar-Dye Movement through the Alimentary Canal of *Odontotermes obesus* (Isoptera: Termitidae) ..... (SN, Jan.) 230
KULMAN, H. M., see D. M. HARMAN .. (Mar.) 280
KURCZEWSKI, FRANK E., AND JEROME BREZNER —A Use for the Densitometer in Insect Taxonomy ..... (SN, Jan.) 230

L

LACHANCE, LEO E., AND ANN P. LEVERICH—Chemosterilant Studies on *Bracon* (Hymenoptera: Braconidae) Sperm. I. Sperm Inactivation and Dominant Lethal Mutations ..... (Jan.) 164
LACHANCE, LEO E., AND ANN P. LEVERICH—Cytology of Oögenesis in Chemosterilized Screw-Worm Flies, *Cochliomyia hominivorax*, as Related to Endomitosis in Nurse Cells ..... (Sept.) 1188
LALL, SURESH B., AND D. M. DAVIES—Comparative Studies of the Labellar Sensitivity of Female Tabanids (Diptera) to Sucrose and Sodium Chloride ..... (Jan.) 222
LAMANSKY, K. W., see M. L. CLEVELAND ..... (July) 809
LAMB, N. J., see R. E. MONROE .... (Mar.) 292, 456

LAMB, N. J., AND R. E. MONROE—Lipid Synthesis from Acetate-1-C^{14} by the Cereal Leaf Beetle, *Oulema melanopus* ..... (Sept.) 1164
LAMB, N. J., AND R. E. MONROE—Studies of Complex Lipids Synthesized from Acetate-1-C^{14} by the Cereal Leaf Beetle, *Oulema melanopus* ..... (Sept.) 1167
LANGE, W. H., see A. A. GRIGARICK ... (Mar.) 509
LANIER, G. N., AND D. L. WOOD—Controlled Mating, Karyology, Morphology, and Sex-Ratio in the *Dendroctonus ponderosae* Complex ..... (Mar.) 517
LEE, M. S., AND D. W. DAVIS—Life History and Behavior of the Predatory Mite *Typhlodromus occidentalis* in Utah ..... (Mar.) 251
LEGNER, E. F., AND G. S. OLTON—Activity of Parasites from Diptera: *Musca domestica, Stomoxys calcitrans,* and Species of *Fannia, Muscina,* and *Ophyra.* II. At Sites in the Eastern Hemisphere and Pacific Area (Sept). 1306
LEGNER, E. F., see DAN GERLING ..... (Nov.) 1436
LENER, WALTER—Economical and Disposable Olfactometer ..... (SN, Nov.) 1618
LEONARD, DAVID E.—A Revision of the Genus *Blissus* (Heteroptera: Lygaeidae) in Eastern North America ..... (Mar.) 239
LEONG, JORGE K. L., AND EARL R. OATMAN—The Biology of *Campoplex haywardi* (Hymenoptera: Ichneumonidae), A Primary Parasite of the Potato Tuberworm .... (Jan.) 26
LEOPOLD, ROGER A., AND JEANETTE PALMQUIST—A Method of Studying Early Cleavage in Eggs of House Flies, *Musca domestica* ..... (SN, Nov.) 1624
LEVENGOOD, W. C.—Rearing a Giant Silkworm Moth, *Hyalophora cecropia,* on an Artificial Culture Medium ..... (Nov.) 1594
LEVERICH, ANN P., see LEO E. LACHANCE ..... (Jan.) 164; (Sept.) 1188
LEWIS, W. J., AND S. BRADLEIGH VINSON—Egg and Larval Development of *Cardiochiles nigriceps* ..... (May) 561
LIENK, S. E., see P. J. CHAPMAN ..... (Mar.) 285
LINGREN, P. D., R. L. RIDGWAY, AND S. L. JONES—Consumption by Several Common Arthropod Predators of Eggs and Larvae of Two *Heliothis* Species That Attack Cotton ..... (May) 613
LINLEY, J. R., AND F. D. S. EVANS—A Simple Device to Aid Time-Lapse Studies with Insects ..... (SN, May) 775
LINLEY, J. R.—Colonization of *Culicoides furens* ..... (Nov.) 1486
LIPPOLD, P. C., F. L. GAMBRELL, AND L. M. MASSEY, JR.—Effects of Ionizing Radiation on the European Chafer, the Plum Curculio, and the Large Milkweed Bug ..... (Jan.) 151
LOHER, WERNER, AND HAROLD T. GORDON—The Maturation of Sexual Behavior in a New Strain of the Large Milkweed Bug, *Oncopeltus fasciatus* ..... (Nov.) 1566
LOHER, W., see H. T. GORDON ..... (Nov.) 1573
LOVITT, ANTHONY E., GEORGE T. OKUMURA, AND HOWARD D. NELSON—Techniques for Preparing Slide Mounts of Female Genitalia of the Khapra Beetle, *Trogoderma granarium,* and Related Species ..... (SN, Nov.) 1623
LUM, P. T. M., J. K. NAYAR, AND M. W. PROVOST—The Pupation Rhythm in *Aedes taeniorhynchus.* III. Factors in Developmental Synchrony ..... (July) 889

M

MACFARLAND, JOHN, see N. W. EARLE .. (July) 949
MACGILLIVRAY, M. E.—A Review of Twelve Aphid Species Described as New by Edith M. Patch ..... (Mar.) 338
MADDOX, D. M.—Bionomics of an Alligatorweed Flea Beetle, *Agasicles* sp. in Argentina ..... (Sept.) 1299
MANGUM, C. L., N. W. EARLE, AND L. D. NEWSOM—Photoperiodic Induction of Diapause in the Boll Weevil, *Anthonomus grandis* ..... (Sept.) 1125
MARKIN, GEORGE P., AND CLAYTON W. MCCOY—The Occurrence of a Nematode, *Diploscapter lycostoma,* in the Pharyngeal Glands of the Argentine Ant, *Iridomyrmex humilis* ..... (Mar.) 505
MARSTON, NORMAN, see WILLIS W. WIRTH ..... (SN, May) 783
MASSEY, L. M., JR., see P. C. LIPPOLD ..... (Jan.) 151
MATTHEWS, ROBERT W., see HOWARD E. EVANS ..... (Sept.) 1284
MATTIX, E. B., see ALAN C. BARTLETT (Sept.) 1148
MCBAIN, J. B., see J. J. MENN ..... (Nov.) 1578
MCCLAIN, ELIZABETH, see DOROTHY FEIR ..... (Mar.) 413, 416
MCCOY, CLAYTON W., see GEORGE P. MARKIN ..... (Mar.) 505
MCCULLOUGH, BRO. THOMAS, C.S.C.—Acid and Aldehyde Compounds in the Scent Fluid of *Leptoglossus oppositus* ..... (SN, July) 1044
MCDANIEL, B.—A New Species of *Fahrenholzia* (Anoplura: Hoplopleuridae) from Texas, with a Key to the Species of the Genus and a List of Their Known Hosts ... (Mar.) 402
MCDANIEL, B., AND EDWARD U. BALSBAUGH, JR.—Bovine Manure as an Overwintering Medium for Coleoptera in South Dakota ..... (May) 765
MCENROE, WILLIAM D., AND JOHN A. NAEGLE—The Coadaptive Process in an Organophosphorus-Resistant Strain of the Two-Spotted Spider Mite, *Tetranychus urticae* .... (Sept.) 1055
MCENROE, WILLIAM D., AND ROY A. HARRISON—The Role of Linkage in the Response of an Arrhenotokous Spider Mite, *Tetranychus urticae,* to Directed Selection ..... (Sept.) 1239

McEnroe, William D., and Jan Kot—Evolution of Organophosphorus Resistance adn Fitness in a Hybrid Swarm of the Two-Spotted Spider Mite, *Tetranychus urticae*. . . . . (Sept.) 1255
McFarland, S. U., see H. H. Shorey. . (Mar.) 372
McLean, D. L., and W. A. Weigt, Jr.—An Electronic Measuring System to Record Aphid Salivation and Ingestion. . . . . (Jan.) 180
McLean, D. L., and M. G. Kinsey—Probing Behavior of the Pea Aphid, *Acyrthosiphon pisum*. II. Comparisons of Salviation and Ingestion in Host and Non-Host Plant Leaves . . . . . (May) 730
McLean, D. L., and M. G. Kinsey—Probing Behavior of the Pea Aphid, *Acyrthosiphon pisum*. III. Effect of Temperature Differences on Certain Probing Activities. . (July) 927
McMurtry, J. A., and G. T. Scriven—Studies on Predator-Prey Interactions Between *Amblyseius hibisci* and *Oligonychus punicae:* Effects of Host-Plant Conditioning and Limited Quantities of an Alternate Food. . . . . (Mar.) 393
Mead, Frank W., see Jerry A. Payne (May) 565
Means, R. G.—Host Preferences of Mosquitoes (Diptera: Culicidae) in Suffolk County, New York . . . . . (Jan.) 116
Medler, J. T., see D. A. Evans. . . . . (Jan.) 60
Medler, J. T., see T. R. Yonke. . . . . (Mar.) 526
Meinwald, Yvonne C., see T. Eisner. . (May) 610
Mendoza, C. E., and D. C. Peters—Morphology and Histology of the Reproductive Systems of Adult Southern Corn Rootworm. . . . . (Sept.) 1279
Menhinick, Edward F., and D. A. Crossley, Jr.—A Comparison of Radiation Profiles of *Acheta domesticus* and *Tenebrio molitor*. . . . . (Nov.) 1359
Menn, J. J., and J. B. McBain—Possible Occurrence of Natural Cholinesterase Inhibitors in the German Cockroach, *Blattella germanica* . . . . . (Nov.) 1578
Metcalf, R. L., W. B. Gruhn, and T. R. Fukuto—Electrophysiological Action of Carbamate Insecticides in the Central Nervous System of the American Cockroach. . (May) 618
Metcalf, R. L., see T. Miller. . . (SN, Nov.) 1618
Miller, Glenn J., and James W. Blankenship—Lipids in Larvae and Adults of the Dried-Fruit Moth, *Vitula edmandsae serratilineella*, Reared on Old Honeycomb. . . . . (SN, July) 1035
Miller, Glenn J., see James W. Blankenship. . . . . (SN, July) 1036
Miller, T., and R. L. Metcalf—A Simple Device for Insect Mechanocardiogram. . . . . (SN, Nov.) 1618
Miller, Thomas A., and Robert E. Treece—A Device for Obtaining Flies of Known Age . . . . . (SN, Mar.) 548
Miller, Thomas A., and Robert E. Treece—Gonadotrophic Cycles in the Face Fly, *Musca autumnalis* . . . . . (May) 690
Mitlin, Norman, see Bruce Glick. . . . . (SN, Mar.) 548
Mizianty, Thomas J.—The Isolation of Enzymatically Active Sarcosomes from Thoraces of *Bracon serinopae*. . . . . (SN, Nov.) 1621
Mockford, Edward L.—Donald Timmerman Ries (1903–1968). . . . . (Obit. Nov.) 1630
Moffitt, Celesta, see H. Tashiro. . . . . (July) 1014
Monroe, R. E., C. S. Polityka, and N. J. Lamb—Utilization of Larval Cholesterol-4-C^{14} for Reproduction in House Flies Fed Unlabeled Cholesterol in the Adult Diet. . . . . (Mar.) 292
Monroe, R. E., and N. J. Lamb—Effect of Commercial Proteins on House Fly Reproduction . . . . . (Mar.) 456
Monroe, R. E., see N. J. Lamb. . (Sept.) 1164, 1167
Moore, H. B.—Development and Longevity of *Xyletinus peltatus* Under Constant Temperatures and Humidities. . . . . (Sept.) 1158
Morin, K. L., see H. H. Shorey. . . . . (July) 857
Morse, R. A., see A. F. Gunnison. . . . . (Jan.) 5
Mourier, H., see A. D. Banegas. . . . . (Jan.) 23
Muka, Arthur A., see William A. Garthe . . . . . (Sept.) 1210
Mulla, M. S., see T. S. Adams. . . . . (Mar.) 368
Myers, Judith H., and Mary E. Walter—Insecticide Poisoning as a Possible Cause of an Aberration of Pupation Behavior in the Florida Queen Butterfly. . . . . (SN, Sept.) 1343
Myers, Wayne L., Fred B. Knight, and David G. Grimble—Frequency of Borer Attacks as Related to Character of Aspen Sucker Stands: A Compartive Study of *Oberea schaumii* and *Saperda inornata*. . . . . (Nov.) 1418

N

Naegele, John A., see William D. McEnroe . . . . . (Sept.) 1055
Nair, K. K., see M. R. Harwalkar. . (Sept.) 1107
Narf, Richard P., see William L. Hilsenhoff . . . . . (Sept.) 1173
Nation, J. L., and F. A. Robinson—Brood Rearing by Caged Honey Bees in Response to Inositol and Certain Pollen Fractions in Their Diet. . . . . (Mar.) 514
Nayar, J. K.—The Pupation Rhythm in *Aedes taeniorhynchus*. IV. Further Studies of the Endogenous Diurnal (Circadian) Rhythm of Pupation . . . . . (Nov.) 1408
Nayar, J. K., see P. T. M. Lum. . . . . (July) 889
Nehman, Barbara F.—An Electron Microscope Study of the Distal Portion of the Hypopharynx of Female *Aedes aegypti*. . (Sept.) 1274
Nelson, D. R., see T. S. Adams. . . . . (Jan.) 112

NELSON, HOWARD D., see ANTHONY E. LOVITT ..... (SN, Nov.) 1623
NELSON, JOHN M.—Parasites and Symbionts of Nests of *Polistes* Wasps ..... (Nov.) 1528
NEUNZIG, H. H., see J. R. BAKER ..... (Sept.) 1181
NEWSOM, L. D., see C. L. MANGUM ..... (Sept.) 1125
NIELSON, M. W.—Biology of the Geminate Leafhopper, *Colladonus geminatus*, in Oregon ..... (May) 598
NIELSON, M. W., AND S. L. TOLES—Observations on the Biology of *Acinopterus angulatus* and *Aceratagallia curvata* in Arizona (Homoptera: Cicadellidae) ..... (Jan.) 54
NORRIS, D. M., W. O. BISHOP, J. K. KNOKE, AND J. L. SAUNDERS—Further Studies of Factors Which Influence *Xyleborus* spp. Emergence and Attack of *Theobroma cacao* ..... (July) 852
NORRIS, D. M., AND J. M. BAKER—A Minimal Nutritional Substrate Required by *Fusarium solani* to Fulfill Its Mutualistic Relationship with *Xyleborus ferrugineus* ..... (Nov.) 1473
NORRIS, D. M., see J. E. BAKER ..... (Sept.) 1248
NUNEZ, W. J., S. D. HENSLEY, AND ARTHUR R. COLMER—Microflora of the Sugarcane Borer, *Diatraea saccharalis* ..... (Nov.) 1427

O

OATMAN, E. R., P. D. GREANY, AND G. R. PLATNER—A Study of the Reproductive Compatibility of Several Strains of *Trichogramma* in Southern California ..... (July) 956
OATMAN, EARL R., see JORGE K. L. LEONG ..... (Jan.) 26
OKUMURA, GEORGE T., see ANTHONY E. LOVITT ..... (SN, Nov.) 1623
OLIVER, JAMES H., JR.—Cytogenetics of Ticks. 4. Chromosomes of *Argas* (*Persicargas*) *zumpti* ..... (SN, May) 787
OLIVER, JAMES H., JR., AND K. C. BREMNER—Cytogenetics of Ticks. III. Chromosomes and Sex Determination in Some Australian Hard Ticks (Ixodidae) ..... (July) 837
OLTON, G. S., see E. F. LEGNER ..... (Sept.) 1306

P

PADOVANI, FLAVIO, see MURRAY S. BLUM ..... (Nov.) 1354
PALMQUIST, JEANETTE, see ROGER A. LEOPOLD ..... (SN, Nov.) 1624
PARKER, FRANK D.—On the Subfamily Astatinae. Part IV. The South American Species in the Genus *Astata* Latreille ..... (July) 844
PARVIN, DAVID E., AND PAUL P. COOK, JR.—Regeneration of Appendages in Damselflies ..... (SN, May) 784
PASCHKE, J. D., see ROBERT C. ANDERSON ..... (Jan.) 1
PATTON, R. L., L. J. EDWARDS, AND S. K. GILMORE—Delivering Safe Levels of CO_2 for Insect Anethesia ..... (SN, July) 1046
PAYNE, JERRY A., FRANK W. MEAD, AND EDWIN W. KING—Hemiptera Associated with Pig Carrion ..... (May) 565
PEACOCK, JOHN W., see JIMMY R. GALFORD ..... (July) 919
PECKHAM, D. BARR, see CARL W. SCHAEFER ..... (Nov.) 1475
PETERS, D. C., see C. E. MENDOZA ..... (Sept.) 1279
PHILIP, CORNELIUS B.—New North American Tabanidae. XIX. Four New Species from Mexico, Honduras, and Arizona ..... (Mar.) 380
PILLAI, P. R. P., AND PAUL W. WINSTON—Culture and Nutrition of *Caloglyphus anomalus* (Acarina: Acaridae) ..... (Jan.) 56
PITRE, H. N., see F. J. BOYD ..... (Nov.) 1423
PLATNER, G. R., see E. R. OATMAN ..... (July) 956
POINAR, GEORGE O., JR.—*Hydromermis conopophaga*, n. sp., Parasitizing Midges (Chironomidae) in California ..... (May) 593
POLITYKA, C. S., see R. E. MONROE ..... (Mar.) 292
PRASAD, V.—Three Moth Mites (Acarina: Mesostigmata) from Hawaii, with Description of a New Species ..... (Jan.) 129
PRASAD, V.—*Noctuiseius treati*, a New Genus and Species of Moth Mite from Hawaii and Easter Island ..... (Mar.) 411
PRASAD, V.—Some *Typhlodromus* Mites from Hawaii ..... (Nov.) 1369
PRASAD, V.—Some Phytoseiid Mites from Hawaii ..... (Nov.) 1459
PRASAD, V.—*Amblyseius* Mites from Hawaii ..... (Nov.) 1514
PRICE, ROGER D., AND JAMES R. BEER—The Genus *Psittacobrosus* (Mallophaga: Menoponidae) of the Neotropical Psittaciformes ..... (Mar.) 261
PRICE, ROGER D.—The *Colpocephalum* of the Cuculiformes ..... (July) 816
PRICE, R. G., see D. G. BOTTRELL ..... (Sept.) 1053
PROVOST, M. W., see P. T. M. LUM ..... (July) 889
PUTNAM, L. G.—Morphometric Polymorphism in *Melanoplus sanguinipes* in Western Canada ..... (SN, Mar.) 540
PUTTLER, BENJAMIN, AND W. A. DICKERSON—Some Aspects of the Biology of *Apanteles forbesi*, a Parasite of *Lacinipolia renigera* ..... (Nov.) 1545
PYE, ALBERT E., AND WILLIAM G. YENDOL—Bacteria in the Digestive Tract of Alfalfa Weevil Larvae ..... (SN, May) 791

R

RANDOLPH, ETELKA F., see WILLIAM M. BANKS ..... (SN, July) 1027

RAO, SUDHA V., see PAUL DEBACH . . . (Mar.) 332
RAULSTON, J. R., AND J. L. AUCLAIR—Responses of *Lygus hesperus* to Chemically Defined Diets . . . (Nov.) 1495
RAYCHAUDHURI, D. N., see A. K. GHOSH . . . (May) 752
REED, D. K., W. G. HART, AND S. J. INGLE—Laboratory Rearing of Brown Soft Scale and Its Hymenopterous Parasites . . . (Nov.) 1443
REED, G. L., see H. C. CHIANG . . . (Jan.) 140
RETTENMEYER, CARL W., AND ROGER D. AKRE—Ectosymbiosis Between Phorid Flies and Army Ants . . . (Sept.) 1317
REXRODE, C. O., AND C. R. KRAUSE—Rearing Larvae of *Pseudopityophthorus pruinosus* and *P. minutissimus* on Ground Phloem Media . . . (July) 814
REXRODE, CHARLES O., AND CHARLES R. KRAUSE—Serial Sections of *Pseudopityophthorus* spp. . . . (SN, Sept.) 1340
RICKER, DONALD W., AND RICHARD D. GOEDEN—A Fume Ventilator for Dissecting Microscopes . . . (SN, July) 1043
RICKER, DONALD W., see RICHARD D. GOEDEN . . . (Jan.) 67
RIDGWAY, R. L., AND S. L. JONES—Plant Feeding by *Geocoris pallens* and *Nabis americoferus* . . . (SN, Jan.) 232
RIDGWAY, R. L., see P. D. LINGREN . . . (May) 613
ROBERTS, DONALD W., AND ROBERT R. GRANADOS—An Inexpensive Device for Pulling Glass Microneedles for Injection of Small Arthropods . . . (SN, July) 1042
ROBINSON, F. A., see J. L. NATION . . . (Mar.) 514
ROBINSON, W. H., AND B. A. FOOTE—Biology and Immature Stages of *Megaselia aequalis*, a Phorid Predator of Slug Eggs . . . (Nov.) 1587
ROCK, GEORGE C.—Growth of *Argyrotaenia velutinanc* by Egg Cannibalism . . (SN, July) 1034
ROELOFS, WENDELL L., AND KUO-CHING FENG Sex Pheromone Specificity Tests in the Tortricidae—An Introductory Report . . . (Mar.) 312
ROGOFF, WM. M., see BRUCE D. COWAN (Sept.) 1215
ROSENTHAL, SARA S., AND C. S. KOEHLER—Photoperiod in Relation to Diapause in *Hypera postica* from California . . . (Mar.) 531
ROTH, LOUIS M.—Oöthecae of the Blattaria . . . (Jan.) 83
ROTH, LOUIS M.—Ovarioles of the Blattaria . . . (Jan.) 132
ROTH, LOUIS M.—Reproduction of Some Poorly Known Species of Blattaria . . . (May) 571
ROTH, LOUIS M.—A Teratological Specimen of *Pycnoscelus surinamensis* . . . (SN, May) 777
ROUT, G., AND B. SENAPATI—Biology of the Aphid, *Lipaphis erysimi*, in India . . . (Mar.) 259
ROWLEY, WAYNE A., CHARLES L. GRAHAM, AND ROBERT E. WILLIAMS—A Flight Mill System for the Laboratory Study of Mosquito Flight . . . (Nov.) 1507
RUBIN, R. E., see R. N. JEFFERSON . . . (July) 861
RUSSELL, MERCER P.—Influence of Rice Variety on Oviposition and Development of the Rice Weevil, *Sitophilus oryzae*, and the Maize Weevil, *S. zeamais* . . . (SN, Sept.) 1335
RYAN, ROGER B.—Electric Barrier Confinement and Cocooning Trays in Rearing the Greater Wax Moth to Facilitate Recovery of Decocooned Pupae . . . (SN, Sept.) 1341

S

SAGE, RICHARD D.—Observations on Feeding, Nesting, and Territorial Behavior of Carpenter Bees Genus *Xylocopa* in Costa Rica . . . (July) 884
SALAMA, A. E., see A. TOPPOZADA . . . (Sept.) 1326
SANTANA, FREDERICK J., see HARRY HOOGSTRAAL . . . (May) 722
SAUNDERS, J. L., AND J. K. KNOKE—Circadian Emergence Rhythm of a Tropical Scolytid, *Xyleborus ferrugineus* . . . (May) 587
SAUNDERS, J. L., see D. M. NORRIS . . . (July) 852
SCHAEFER, CARL W.—Inhibition by Acetylcholine of Malpighian Tubule Muscle of the Cockroach *Periplaneta americana* (SN, Jan.) 226
SCHAEFER, CARL W.—Effect of Host Response on Feeding and Digestion in Hematophagous Insects . . . (SN, July) 1045
SCHAEFER, CARL W., AND D. BARR PECKHAM—Host Preference Studies on a Mite Infesting the Cockroach *Gromphadorhina portentosa* . . . (Nov.) 1475
SCHEIE, PAUL O., THOMAS SMYTH, JR., AND RAYMOND T. GREER—Perforations in Cockroach Cuticle as Viewed by a Scanning Electron Microscope . . . (SN, Sept.) 1346
SCHILLINGER, J. A., JR., AND R. L. GALLUN—Leaf Pubescence of Wheat as a Deterrent to the Cereal Leaf Beetle, *Oulema melanopus* . . . (July) 900
SCHMIDT, C. D., R. L. HARRIS, AND R. A. HOFFMAN—New Techniques for Rearing Horn Flies at Kerrville, 1967 . . . (SN, July) 1045
SCHMITZ, R. F., AND M. M. FURNISS—Secondary Sex Characters of *Scolytus laricis* . . . (SN, Nov.) 1626
SCHROEDER, WILLIAM J.—Determination of Larval Instars of the Hickory Shuckworm, *Laspeyresia caryana* . . . (SN, Nov.) 1620
SCHULZ, J. T., see T. R. COUPE . . . (Jan.) 74
SCHULZ, J. T., see T. R. COUPE . . . (July) 802
SCRIVEN, G. T., see J. A. MCMURTRY . . (Mar.) 393
SELHIME, ALLEN G., AND ROBERT F. KANAVEL—Life Cycle and Parasitism of *Micromus posticus* and *M. subanticus* in Florida . . . (Sept.) 1212
SENAPATI, B., see G. ROUT . . . (Mar.) 259

SHAPIRO, ARTHUR M.—Laboratory Feeding Preferences of the Banded Woollybear, *Isia isabella* ..... (Sept.) 1221
SHOREY, H. H., S. U. MCFARLAND, AND LYLE K. GASTON—Sex Pheromones of Noctuid Moths. XIII. Changes in Pheromone Quantity, as Related to Reproductive Age and Mating History, in Females of Seven Species of Noctuidae (Lepidoptera) ..... (Mar.) 372
SHOREY, H. H., K. L. MORIN, AND LYLE K. GASTON—Sex Pheromones of Noctuid Moths. XV. Timing of Development of Pheromone-Responsiveness and Other Indicators of Reproductive Age in Males of Eight Species ..... (July) 857
SHOREY, H. H., see R. N. JEFFERSON ... (July) 861
SHORTINO, T. J., see JUDITH A. WEST .. (Jan.) 13
SIMON, ROGER P., AND ALLEN W. BENTON—Winter Activities of *Vespula maculifrons* ..... (SN, Mar.) 542
SINGH, N. B., see S. S. KRISHNA .. (SN, Jan.) 230
SINHA, R. N.—Seasonal Changes in Mite Populations in Rural Granaries in Japan ..... (July) 938
SMITH, CLYDE F., AND DEAN G. DILLERY—The Genus *Drepanaphis* Del Guercio (Homoptera: Aphididae) ..... (Jan.) 185
SMITH, EDWARD LAIDLAW—Biosystematics and Morphology of Symphyta. I. Stem-Galling *Euura* of the California Region, and a New Female Genitalic Nomenclature ..... (Nov.) 1389
SMITH, J. W., JR.—Clarification of the *Ptinus verticalis* Complex and a Description of a New Species ..... (Sept.) 1197
SMITH, ROBERT E., see ARNOLD M. CLARK ..... (SN, Mar.) 541
SMITH, ROGER C.—Ralph Langley Parker (1892-1968) ..... (Obit. Nov.) 1631
SMITH, STAMFORD D.—The *Rhyacophila* of the Salmon River Drainage of Idaho with Special Reference to Larvae ..... (May) 655
SMITH, T. L.—Gynandromorphism in the Greater Wax Moth, *Galleria mellonella* ..... (SN, Sept.) 1336
SMITHWICK, ELEANOR B., see U. EUGENE Brady ..... (Sept.) 1260
SMYTH, THOMAS, JR., see PAUL O. SCHEIE ..... (SN, Sept.) 1346
SNODDY, EDWARD L.—Simuliidae, Ceratopogonidae, and Chloropidae as Prey of *Oxybelus emarginatum* ..... (SN, July) 1029
SNODDY, EDWARD L., AND H. H. TIPPINS—On the Ecology of a Smoke Fly, *Microsania imperfecta* ..... (Sept.) 1200
SOKAL, ROBERT R., see JOHN A. HENDRICKSON, JR. ..... (Mar.) 385
SOKOLOGG, ALEXANDER, AND MARJORIE A. HOY—Mutations as Possible Aids for Establishing Genitalic Homologies in the Sexes in *Tribolium castaneum* ..... (SN, Mar.) 550
SOLES, ROBERT L., AND HENRY D. GERHOLD—Caged White Pine Seedlings Attacked by White-Pine Weevil, *Pissodes strobi*, at Five Population Densities ..... (Nov.) 1468
SOLOMON, JAMES D.—Gallery Construction by the Carpenterworm, *Prionoxystus robiniae*, in Overcup Oak (Lepidoptera: Cossidae) ..... (Jan.) 72
SONENSHINE, DANIEL E., AND I. JACK STOUT—Use of Old-Field Habitats by the American Dog Tick, *Dermacentor variabilis* .... (May) 679
Soo Hoo, CALVIN F., see LYLE E. KLOSTERMEYER ..... (SN, May) 782
Soo Hoo, C. F.—Defense Mechanisms of Larval Scarabaeids ..... (Sept.) 1111
SOUTHWICK, J. W., AND D. W. DAVIS—Behavior Patterns of the Adult Alfalfa Weevil in Cache County, Utah ..... (Sept.) 1228
SPARKS, M. R.—Responses of Two Strains of the Tobacco Hornworm, *Manduca sexta*, to Various Light Intensities ..... (Nov.) 1466
STAGE, GERALD I., see ROBBIN W. THORP ..... (Nov.) 1580
STANDLEA, P. P., AND T. R. YONKE—Clarification of the Description of the Digestive System of *Heliothis zea* ..... (Nov.) 1478
STANLEY, M. S. MILLAM, AND J. L. VAUGHN—Histologic Changes in Ovaries of *Bombyx mori* in Tissue Culture ..... (Sept.) 1064
STANLEY, M. S. MILLAM, AND J. L. VAUGHN—Origin of Migrating Cells in Cultures of Moth Ovarian Tissue Based on Developmental Stages Producing Optimum Outgrowth ..... (Sept.) 1067
STERN, VERNON M., AND WILLIAM R. BOWEN—Further Evidence of a Uniparental Race of *Trichogramma semifumatum* at Bishop, California ..... (SN, July) 1032
STONER, WARREN N., see RALPH D. GUSTIN .. (Jan.) 77
STOUT, I. JACK, see DANIEL E. SONENSHINE ... (May) 679
STREAMS, FREDERICK A.—Defense Reactions of *Drosophila* Species (Diptera: Drosophilidae) to the Parasite *Pseudeucoila bochei* (Hymenoptera: Cynipidae) ..... (Jan.) 158
STURGESS, BRIAN T., AND ROBERT L. GOULDING—Tolerance of Three Species of Larval Chironomidae to Physicochemical Stress Factors Occurring in Stabilization Lagoons ..... (July) 903
SUTHERLAND, D. J., see A. P. GUPTA ... (July) 910
SWINTON, D. E., see STANLEY D. BECK ..... (Mar.) 459

T

TALERICO, ROBERT L.—Life History of the Looper *Phigalia titea* in Virginia ..... (May) 557

TAMAKI, GEORGE, AND R. E. WEEKS—*Anthocoris melanocerus* as a Predator of the Green Peach Aphid on Sugar Beets and Broccoli . . . . . (May) 579
TANDAN, B. K., see K. P. HAJELA . . . . . (Jan.) 146
TARSHIS, I. BARRY—Use of Fabrics in Streams to Collect Black Fly Larvae . . . . . (July) 960
TARSHIS, I. BARRY—Collecting and Rearing Black Flies . . . . . (Sept.) 1072
TASCHENBERG, E. F., see P. S. CALLAHAN . . . . . (July) 934
TASHIRO, H., AND J. B. BEAVERS—Growth and Development of the California Red Scale, *Aonidiella aurantii* . . . . . (July) 1009
TASHIRO, H., AND CELESTA MOFFITT—Reproduction in the California Red Scale, *Aonidiella aurantii*. II. Mating Behavior and Postinsemination Female Changes . . . . (July) 1014
TAUBER, CATHERINE A., see MAURICE J. TAUBER . . . . . (SN, Mar.) 553
TAUBER, MAURICE J., AND CATHERINE A. TAUBER—Biology of the Gall-Former *Procecidochares stonei* on a Composite . . . . . (SN, Mar.) 553
THATCHER, VERNON E.—Arboreal Breeding Sites of Phlebotomine Sandflies in Panama . . . . . (Sept.) 1141
THOMAS, H. A.—Distribution of the Balsam Woolly Aphid Predator, *Leucopis obscura*, in Maine . . . . . (SN, Sept.) 1344
THOMAS, WILLIAM A.—Calcium Content of *Mycodiplosis alternata* (Diptera: Cecidomyiidae) Galls . . . . . (SN, Jan.) 234
THOMFORDE, L. L., AND C. R. FREMLING—Synchronous Emergence of *Hexagenia bilineata* Mayflies in the Laboratory . . . . . (Sept.) 1235
THORP, ROBBIN W., AND GERALD I. STAGE—Ecology of *Andrena placida* with Descriptions of the Larva and Pupa . . . . . (Nov.) 1580
TIPPINS, H. H., see EDWARD L. SNODDY . . . . . (Sept.) 1200
TOLES, S. L., see M. W. NIELSON . . . . . (Jan.) 54
TOPPOZADA, A., A. E. SALAMA, M. E. ELDEFRAWI, AND M. ZEID—Histopathological Effects of Insecticides on the Midgut of the Egyptian Cotton Leafworm, *Spodoptera littoralis* . . . . . (Sept.) 1326
TORGERSEN, TOROLF R.—Parasites of the Hemlock Sawfly, *Neodiprion tsugae*, in Coastal Alaska . . . . . (Sept.) 1155
TREECE, ROBERT E., see THOMAS A. MILLER . . . . . (SN, Mar.) 548
TREECE, ROBERT E., see THOMAS A. MILLER . . . . . (May) 690
TRIPLEHORN, CHARLES A.—Generic Classification in Coniontini and Description of a New Species of *Eusattus* from Texas . . . . . (Mar.) 376
TRUMAN, JAMES W.—Acetone Treatment for Preservation of Adult and Larval Mosquitoes . . . . . (SN, May) 779
TRUMAN, JAMES W., AND GEORGE B. CRAIG, JR.—Hybridization Between *Aedes hendersoni* and *Aedes triseriatus* . . . . . (July) 1020

U

UECKERT, DARRELL N.—Seasonal Dry-Weight Composition in Grasshopper Diets on Colorado Herbland . . . . . (Nov.) 1539

V

VAIL, P. V., A. F. HOWLAND, AND T. J. HENNEBERRY—Seasonal Distribution, Sex Ratios, and Mating of Female Noctuid Moths in Blacklight Trapping Studies . . . . . (Mar.) 405
VALDER, STEPHEN M., AND T. L. HOPKINS—Effects of Nutrition on Egg Development and Survival in the Face Fly, *Musca autumnalis* . . . . . (July) 827
VANDERZANT, ERMA S.—Dietary Requirements of the Bollworm, *Heliothis zea* (Lepidoptera: Noctuidae), for Lipids, Choline, and Inositol and the Effect of Fats and Fatty Acids on the Composition of the Body Fat . . . . . (Jan.) 120
VAN PEENEN, P. F. DIRK, see HARRY HOOGSTRAAL . . . . . (May) 722
VAUGHN, J. L., see M. S. MILLAM STANLEY . . . . . (Sept.) 1064
VAUGHN, J. L., see M. S. MILLAM STANLEY . . . . . (Sept.) 1067
VINSON, S. BRADLEIGH—Source of a Substance in *Heliothis virescens* (Lepidoptera: Noctuidae) that Elicits a Searching Response in Its Habitual Parasite *Cardiochiles nigriceps* (Hymenoptera: Braconidae) . . . . . (Jan.) 8
VINSON, S. BRADLEIGH, see W. J. LEWIS . . . . . (May) 561

W

WALDBILLIG, RONALD C.—Color Vision of the Female Stable Fly, *Stomoxys calcitrans* . . . . . (SN, May) 789
WALTER, MARY E., see JUDITH H. MYERS . . . . . (SN, Sept.) 1343
WASHINO, R. K., AND Y. HOKAMA—Quantitative Sampling of Aquatic Insects in a Shallow-Water Habitat . . . . . (SN, May) 785
WEEKS, R. E., see GEORGE TAMAKI . . . . . (May) 579
WEIGT, W. A., JR., see D. L. MCLEAN . . . . . (Jan.) 180
WEST, JUDITH A., GEORGE E. CANTWELL, AND T. J. SHORTINO—Embryology of the House Fly, *Musca domestica* (Diptera: Muscidae), to the Blastoderm Stage . . . . . (Jan.) 13

WHEELER, GEORGE C., AND JEANETTE WHEELER —The Ant Larvae of the Subfamily Formicinae (Hymenoptera: Formicidae): Supplement ..... (Jan.) 205
WHEELER, JEANETTE, see GEORGE C. WHEELER ..... (Jan.) 205
WHEELER, M. R., see H. L. CARSON .... (May) 675
WILLIAMS, JUDY A., AND JOHN D. EDMAN—Occurrence of Blood Meals in Two Species of *Corethrella* in Florida ..... (SN, Sept.) 1136
WILLIAMS, ROBERT E., see WAYNE A. ROWLEY ..... (Nov.) 1507
WILSON, LOUIS F.—Habits and Movements of the Adult Pine Root Collar Weevil in Young Red Pine Plantations ..... (Nov.) 1365
WILSON, LOUIS F.—Diel Periodicity and Survival Behavior of Pine Root Collar Weevil Adults Under Various Light and Temperature Conditions ..... (Nov.) 1490
WILSON, N. M., see ALAN C. BARTLETT ..... (Sept.) 1148
WINSTON, PAUL W., see P. R. P. PILLAI ..... (Jan.) 56
WIRTH, WILLIS W., AND NORMAN MARSTON—A Method for Mounting Small Insects on Microscope Slides in Canada Balsam ..... (SN, May) 783
WONG, T. T. Y., see M. L. CLEVELAND .. (July) 809
WOOD, D. L., see G. N. LANIER ..... (Mar.) 517
WOODRING, J. P.—An Automatic Collecting Device for Tyroglyphid (Acaridae) Mites ..... (SN, July) 1030
WOODRING, J. P., AND J. J. CUTCHER—Vital Dye Marking of Tyroglyphid (Acaridae) Mites ..... (SN, July) 1031

Y

YANG, RAYMOND S. H., AND MORLEY R. KARE —Taste Response of a Bird to Constituents of Arthropod Defensive Secretions ..... (SN, May) 781
YONKE, T. R., AND J. T. MEDLER—Biologies of Three Species of *Alydus* in Wisconsin .... (Mar.) 526
YONKE, T. R., see P. P. STANDLEA ... (Nov.) 1478
YENDOL, WILLIAM G., see ALBERT E. PYE ..... (SN, May) 791
YOUNG, J. H., see D. G. BOTTRELL ..... (Sept.) 1053
YOUNG, ROGER G., see GAIL M. JACOBSON ..... (July) 806
YURKIEWICZ, WILLIAM J.—Glass Fiber-Silica Gel Sheets for Insect Phospholipid Fractionation ..... (SN, July) 1026

Z

ZAR, JERROLD H., see JOHN D. BUFFINGTON ... (SN, May) 774
ZEID, M., see A. TOPPOZADA ..... (Sept.) 1326